

THE name of Ada is now part of computer jargon, having been adopted for a real time language. It has been suggested that the name might have begun as a joke between Lord Byron and his wife: it was

the second name of their only daughter Augusta Ada Byron (1815-1852). DONALD DAVIES charts the stormy life of the world's first programmer.

The stormy life of the world's first programmer

ADA's father was the great Lord Byron, whose marriage to Lady Byron broke up quickly so that when Ada was born on December 10, 1815, he saw little of the baby and had no more contact with Lady Byron and her daughter.

The story of Ada's life is dominated by the personality of Lady Byron. It is understandable that Byron, as a great romantic figure, should leave bitter thoughts with his estranged wife. For the rest of her life Lady Byron sought to justify her own conduct, a task which she pursued with obsession, as well as giving lifetime employment to several lawyers.

One of her unfounded fears was that Byron would somehow take away his daughter. With considerable legal skill, Ada was put into a Ward in Chancery without Byron's knowledge.

Portraits show Ada as a beautiful little girl. She was intelligent and responded well to

and born in September, 1837, and another boy, called Ralph, born in July 1838. Ralph was the name of Lady Byron's father.

In June, 1837, Victoria came to the throne and, in her 1838 Coronation Honours, Lord King became the Earl of Lovelace and his older son (aged 2) became Viscount Ockham.

Thus avoiding some possible confusion about his Christian name Byron. It is probable that this honour for Lord King was due to Lady Byron's cousin, Lord Melbourne. Two years later, Lord Melbourne made him Lord Lieutenant of Surrey and provided him with a life ticket to drive through Constitution Hill, a considerable privilege.

Charles Babbage moved on from the Difference Engine to the much grander concept of the Analytical Engine, but he never seems to have written any single coherent account of this machine or of its programming. The best account we have comes



LADY LOVELACE . . . one of the few who really understood Charles Babbage's Analytical Engine.

by DONALD DAVIES

the intensive education which Lady Byron planned.

Lady Byron had a great interest in educational methods. At the age of five Ada was being taught arithmetic, geometry, spelling, reading, music, geography and French. She was already said to be skilful in arithmetic. Her regime was strict, but Ada seems generally to have liked her lessons.

In February, 1824, when Ada was eight, Lord Byron died. He was trying with his last breath to say something relating to Ada. His daughter, it was written, "shed large tears".

From the age of 14, Ada seems to have been stricken with a disease which made it difficult for her to walk. For a while she used crutches and at the time of her presentation at Court in May 1833, aged 17, she was still finding it difficult to stand for long.

Those at the presentation to King William IV and Queen Adelaide included Talleyrand, the Duke of Wellington and Lord Melbourne, who was Home Secretary, soon to be Prime Minister, and who was Lady Byron's cousin.

A few weeks later, she went to a party which pleased her more because of the "scientific people" there. This was her first meeting with Charles Babbage, who at that time was beginning to have problems with the funding by the Treasury for building his Difference Engine. Ada's friendship with Babbage continued throughout her life.

In the following year, Ada was attending lectures on the Difference Engine given by Dr Lardner.

In July 1835 she was married to Lord King. Probably, Ada's meeting with her future husband was brought about by Mrs Somerville, a lady who was a celebrity in the scientific world and had a portrait bust made of her to stand in the Great Hall of the Royal Society. Despite this, Mrs Somerville could not become a Fellow or even enter the place to see the sculpture.

The King family had three children quite soon: a boy in May 1838 called Byron, a girl called Anna Isabella or Annabella after her grandmother Lady Byron

and by a roundabout route, and its completeness is largely due to Ada herself.

Charles Babbage had given some lectures in Turin and the young Italian military engineer, L. F. Menabrea, who heard them, wrote an account of the machine in French which was published in October, 1842. Lady Lovelace told Babbage that she had translated this paper into English and he asked her at once why she had not written an original paper. This had not occurred to her, but Babbage persuaded her to add many detailed notes to Menabrea's paper including some examples of programs which she discussed with Babbage but which, with one exception, were her own.

She had also found that Babbage's suggestion for calculating Bernoulli numbers had "a grave mistake", the first reported example of a program bug.

When Ada had finished with these notes, they were three times as long as the original memoir and Babbage was evidently delighted with the result, which he regarded as the first full demonstration of the power of the Analytical Engine.

Ada's notes on Menabrea's paper are possibly the only direct evidence of her mathematical ability. They are clear, well-written and intelligent though, by modern standards, they seem over-long. Her correspondence with Babbage shows her charm and high regard for him. He certainly valued her ideas and found her one of the few people who really understood what the Analytical Engine was about. But his attempts to improve the style of her notes drew a strong rebuke from Ada.

Babbage would have been careful not to alter them again without good reason. He gave Ada all the credit for them except for the basic method used to calculate Bernoulli numbers.

In the notes she introduces an index notation to remove some ambiguities. She discusses the many different sequences in which a set of operations could be carried out, and suggests that

the right choice will shorten the total time of calculation. Tactfully, she corrects Menabrea's formulae and then lays out the operation of his programs in tables to make the process entirely clear.

Her final example, the Bernoulli numbers requires, as she says, "cycles of cycles" and the paper ends with a large table tracing the history of the 24 variables needed to compute up to B. She wrote the table in pencil and Lord Lovelace linked it in. Then they found a major error of method and had to do it again.

Both worked hard to polish and refine the notes, but I think Babbage would have been annoyed if he had to alter them again without good reason. He gave Ada all the credit for them except for the basic method used to calculate Bernoulli numbers.

This visit was to have a profound effect on Ada. At first she was morose and Col Wildman could get almost no words from her. She wrote to her mother that the visit to Newstead Abbey had made her strangely depressed. What seems to have happened was that Col. Wildman, who knew Lord Byron in his youth had, in his conversation and by the way she

beautifully) designates the elasticity of my intellect". She says that he "feels himself a mere tortoise in comparison". She was not inclined to exaggerate and so Faraday probably did pay her that her mother came to see her again.

So the end of Ada's life was tragic. She had pawned the family jewels for £2000 to try and pay some remaining debts and Lady Byron sent her lawyer to redeem the jewels and return them. On her death-bed, she passed the jewels to John Cross who pawned them again and Lady Byron redeemed them again but kept them herself for safety.

She died in December, 1852,

aged 36, the same age as Byron at his death. In accordance with her wishes she was interred in the Byron family vault in the village church of Hucknall, Torkard. Evidently Lovelace had contrived to put her coffin close to that of Byron as she wanted; because this is where they were found when the vault was opened in 1858.

Ada was acquainted also with Faraday and with Charles Wheatstone who was then developing the electric telegraph with William Cooke.

Ada was noted for her outspokenness. She wrote that "Faraday expresses himself in absolute amazement at what he (I think most happily and

of a good notation and remarked that mathematical notation was insufficient. Her notes have a surprisingly "modern" feeling compared to anything Menabrea wrote, and perhaps Babbage also. But nothing else of her scientific work or ideas remains, to my knowledge.

This close collaboration between Babbage and the young married lady must have been unusual. In the manner of the day, they corresponded frequently, sometimes daily or even more than once a day. Babbage visited the Lovelaces' home in North England. Among another place they visited Newstead Abbey which earlier belonged to the Byron family but had been sold to Col. Wildman. Nearby was Hucknall, where Ada's father was buried.

The experience of working through these examples was important. Menabrea felt that the intellectual work would end with the mathematical formulae. What we now call programming he supposed was a job for "workmen".

Ada was clearly not doing the job of "workmen". She seems to have understood the importance

of a good notation and remarked that mathematical notation was insufficient. Her notes have a surprisingly "modern" feeling compared to anything Menabrea wrote, and perhaps Babbage also. But nothing else of her scientific work or ideas remains, to my knowledge.

This close collaboration between Babbage and the young married lady must have been unusual. In the manner of the day, they corresponded frequently, sometimes daily or even more than once a day. Babbage visited the Lovelaces' home in North England. Among another place they visited Newstead Abbey which earlier belonged to the Byron family but had been sold to Col. Wildman. Nearby was Hucknall, where Ada's father was buried.

The experience of working through these examples was important. Menabrea felt that the intellectual work would end with the mathematical formulae. What we now call programming he supposed was a job for "workmen".

Ada was clearly not doing the job of "workmen". She seems to have understood the importance

maintained the house as a tribute to the Byron family, to challenge Ada's lifelong indoctrination concerning the sins of her father.

The last two years of Ada's life form a story of illness and disgrace. The illness was cancer, which showed its first signs in late 1850. The disgrace came from her addiction to gambling on horses.

There is no certain connection between this gambling and her friendship with Babbage, though Babbage tried to help her later when she was in trouble. Even the idea that Ada had "system" using mathematics to win on the horses is not really substantiated by the evidence.

This may have been the beginning of her downfall but in the end she was simply heavily in debt and trying to retrieve her situation with more betting. She was mixed up with unsavoury characters, offering tips and trying to extract money that she owned them. Among these appears John Crosse, the son of a former scientific friend and of whom there was some hint of other scandals because he had concealed from the Lovelace family that he was a married man.

Ada's ill-fortune came to a head on Derby Day, 1851. The horse that won and sealed her fate was called Teddington. She owed £3,200, a very large sum.

Settling the debts was difficult because untrustworthy people claimed to have laid out large sums on Ada Lovelace's account. It was impossible to keep the matter quiet so, as well as writing to Lady Byron, Lord Lovelace travelled to Leamington to see her. He told her about Ada's increasing signs of illness, but evidently the news of Ada's gambling affected Lady Byron.

Nato's decision to award the

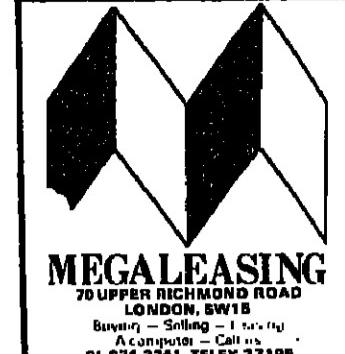
ICL7502
PT7 X
You have a choice.
Consider the alternative.
For all the details contact, PT7 Sales,
Ferranti Computer Systems Limited,
Telephone: 061-437 6391
FERRANTI

NUMBER 99

Computer Weekly International, January 10, 1980

Computer Weekly International

THURSDAY, JANUARY 10, 1980



70 UPPER RICHMOND ROAD
LONDON SW14
Buyer - Sells - Lets
A Computer - Call us
01-874 3241, TELEX 2710B

CDC sets up centres for small businesses

WHILE politicians and sociologists talk tirelessly about the need to help small businesses and to revitalise inner-city areas, Control Data is actually doing something in the US to alleviate the problem of both.

Starting in its home city of St Paul, the company is establishing a string of business centres across the country which offer to small business tenants a share in high technology

services which they would not otherwise be able to afford. Included in the rent are a building receptionist, use of conference rooms and access to a technical library with over 1,800 volumes and the major periodicals. In addition terminal access to CDC's Cybernet, programming services, use of a Xerox collecting copier and telephone answering service are all charged on a usage basis. Business advisory services are

also offered. Control Data is not establishing the centres out of altruism; it expects them to pay and has set a target of profitability after three years. The St Paul centre was opened last May and others are being established in the run-down city centres of St Paul's twin city, Minneapolis, in Toledo and in Philadelphia. Control Data hopes to have 15 in operation within five years.

Logica in \$8 million Nato study contract

LOGICA is part of an international consortium which has just been awarded a multi-million dollar study contract to define the overall architecture of a massive command and control network called Allied Command Europe — Command and Control Information System, ACE-CCIS. The consortium is headed by the Munich based consultancy Electronik System, and the other four members include IBM Germany.

Consortia that bid unsuccessfully included one led by the defence systems side of Plessey and which included Seicon. The other consortium in the final short-list of two was headed by TRW of the US and included ICL's software company Data-skill. Both consortia were equally good technically but the ESG group got the job because its bid was cheaper.

The proposed command and control network will interface with the existing and future networks operated by the armed forces of the individual Nato member countries including the UK's Optron.

The study will include establishing the requirements of potential users of the network and is the first stage of a project which could take up to 15 years to complete. Substantial contracts for implementation work will be awarded in the future and like the study contract will be open to tender.

Contracts still have to be placed for the message switching systems, Scars and Camps, that form part of Nato's communications plans along with the command and control network.

The other three members of the ESG consortium are the US firm BDM Corp of McLean, Virginia, a third German firm, GEI of Aachen, and Sobemap of

well 6000 series machine at Shape headquarters at Mons in Belgium which has been upgraded to look like a Level 60. The project includes Cobol conversion from an IBM 360.

Another US owned firm, PRG International, is currently working on the other big current computer-related Nato project, the Shape Transition Programme. This involves a Honeywell

Arabic Braille systems for Saudi Arabia

A COMMISSION to design a computer system for producing Arabic Braille to benefit the blind in Saudi Arabia has been granted to Warwick University's Research Unit for the UK's Optron.

The study will include establishing the requirements of potential users of the network and is the first stage of a project which could take up to 15 years to complete. Substantial contracts for implementation work will be awarded in the future and like the study contract will be open to tender.

Contracted Arabic Braille contains a large number of complex abbreviations to make reading faster, but hitherto the conversion from ordinary Arabic has required a skilled person.

The hardware for the system has not yet been chosen, but several manufacturers make suitable Arabic terminals.

Warwick's unit for the blind is best known for the service it

provides to blind customers of Lloyds Bank, embossing statements for them automatically from magnetic tapes provided by the bank. About 7,000 such statements are produced a year, giving blind people increased privacy as previously they had to ask friends or neighbours to read their statements to them.

Thus a plan which emphasises support for the small systems and peripherals sector would enable the government to continue to aid CH-IBB after the UK directive comes into force.

Two-year field trial planned for Canada's Telidon viewdata system

CANADA has added another field trial to plans for the development of its Telidon viewdata system. The latest trial, called Project Mercury, is due to start in the coming autumn in Saint John, New Brunswick, on the east coast, and run for up to two years.

It is the smallest trial announced so far and involves 20 terminals to be located around 75 homes and businesses, linked by dedicated lines to a DEC PDP-11 at the New Brunswick Telephone Company. The trial will also include meter reading, fire and burglar alarms, medical

alarms and 100,000 pages. John Smiley, of the government Department of Communications, said at least three more trials would be announced by next summer. Information providers were being recruited now; both local and national; and information of national interest would be syndicated for sale through every service. One broadcast will go out last week.

The biggest Telidon trial is the Vista project planned by the Bell Canada telephone company for Toronto and Montreal early next year, starting with 600 terminals and 50,000 homes and growing quickly to 100,000 by

1982. The ever-growing international attendance gives Compex Europe exceptional status as a sales platform for providers of hardware, software and services from every country. End user participation in its benefits by posting the coupon below.

COMPEX EUROPE '80 STAND RESERVATION FORM

For the exhibition March 22-24, 1980, Brussels, Belgium

Please enclose my entry for stand space at Compex Europe '80 and send my application form.

Compex Europe '80, Centre International Rogier, Brussels, Belgium

SPOTLIGHT ON ITALY-1

Italy is a land of small businesses so it is not surprising that the country's top two computer companies are primarily in small business systems. In this two-page spotlight on Italy ANTHEA BALLAM looks first at Olivetti's automated office philosophy and then considers the fortunes of Italy's second computer firm, Mael.

And in the beginning was Olivetti's word

THE automated office of the future is a distant dream despite the remarkable technological advances made over the past decade. Advances continue to be made in the fields of small business systems, word processing, typewriter and calculator technology, but such developments are piecemeal. Only when these technologies integrate will the truly automated office become a practical reality.

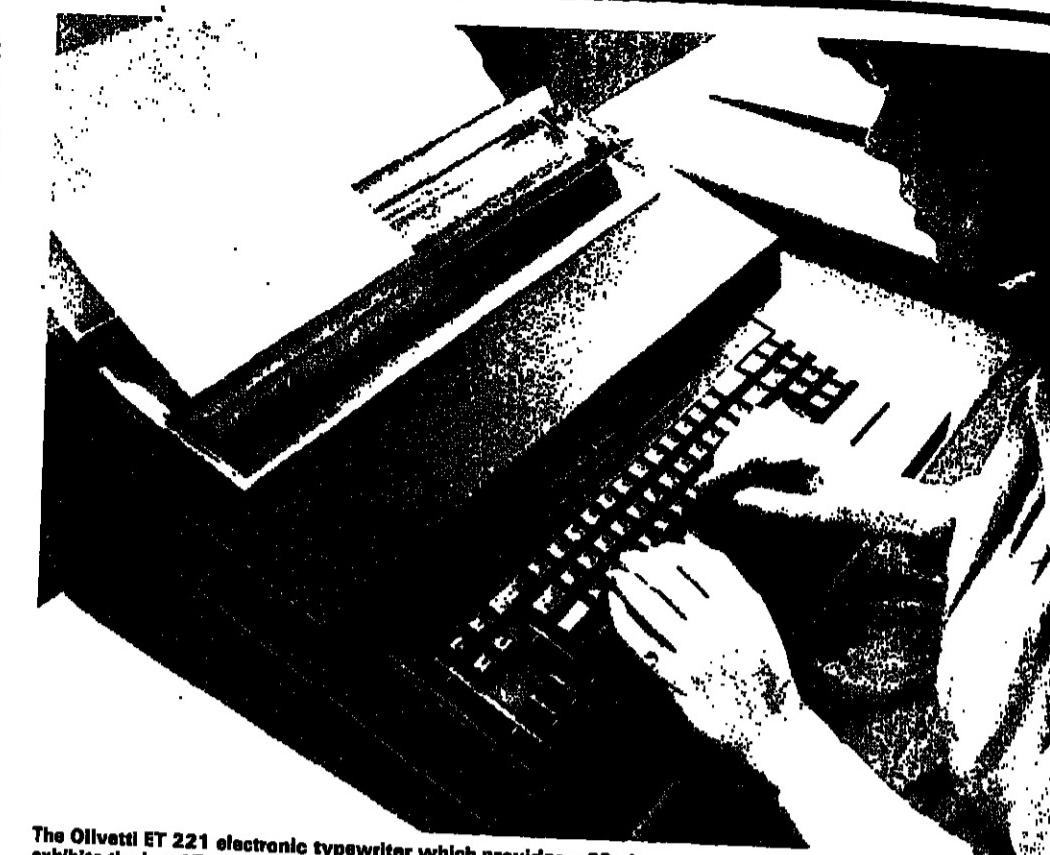
Two organisations are perfectly positioned to move into the integrated automated office market IBM and Olivetti. These two most conspicuously supply all the multitudinous equipment

necessary for standard office routines.

Olivetti is deeply concerned with the philosophy behind the automated office, as Ettore Moretti, chief of the office products group, explained.

He considers, quite reasonably, that the automated office begins with the word, and the word is the typewriter. It may be no coincidence that this year, the most financially healthy for the company for many moons, it has staged its most aggressive marketing tour de force yet, in launching its two new generation electronic typewriters the ET 221 and ET 201.

Franco Agostinucci, chief of Olivetti's distributed processing, explained the philosophy behind future systems development. "The possibilities lie in the software of the machine and we will



The Olivetti ET 221 electronic typewriter which provides a 20-character guide and entry display which visually prints.

discover what will be necessary at the request of the market.

"If there is a demand for an accounting module we will provide that facility, as in the case of those that may demand systematic invoice production."

He was enthusiastic to explain that the capabilities of such devices were considerable, but must be dictated by market demand. "It is technologically already feasible that such a machine can be plugged into a minicomputer system, but plans for building such systems with so heavy a degree of integration must be seen as something for the future. We have the technology."

Meanwhile the ET 221 and ET 201 remain good, efficient stand-alone electronic typewriters with 16K memory and a number of useful facilities that make the typist's life a good deal easier and more fun. The 221, for example, provides a 20 character guide and entry display which visually exhibits the last 15 characters typed on the keyboard and allows for immediate correction of the text prior to printing. Both units incorporate a daily-wheel printing device and both permit basic information to be recalled from memory for regularly used phrases, letter terminations and dates.

Instructions are also provided for automatic positioning of paper and automatic indications are given for a page end. The electronic buffered keyboard provides a somewhat futuristic capability for internationally minded secretaries in that all the variations for national accents and symbols can be recalled at will.

International keyboards apart, Olivetti was quite bold in stating repeatedly at its US Press launch of these products that they were "designed exclusively for the American market". Possibly the company sought recognition of the products in the US as a key to their European acceptance, or maybe they simply wished that the factories producing the machines both in Harrisburg (Pennsylvania) and Ivrea would be kept fully occupied. Whatever the intention the ET 221 and 201 machines have proved successful.

Moving up the word processing ladder one step beyond the electronic typewriters, one encounters two somewhat more heavy duty systems, the TES 401 and the TES 501. The Olivetti 501 has earned the distinction of being used both at the EEC headquarters in Brussels and also at the European Court of Justice in Luxembourg. It incorporates a number of familiar features in word processing units and appears to be a straightforward and easy to use system.



One of Olivetti's new generation electronic typewriters, the ET 201.

capabilities. "Today office automation isn't looking for integrated systems performance so much as an increase in the communications capability of the typewriter... we are also looking at teletext services which are an important development."

He added, "I visualise the automated office of the future evolving from several different points, within the office, and this evolution is not likely to come from customised design."

How did Olivetti respond to the challenge of providing equipment to meet a customer requirement? Here Agostinucci took up the story, citing the important order that Denmark's Sparekasseerne (Savings Bank) had recently placed with the company. In this case the Italian company will be designing bank terminals specifically to meet customer requirements.

Thus within the distributed data processing field, the company can be found to market products varying from the BCS 2000 small business computer through to its well established terminal and data entry units.

Yet when it comes to office automation in the true sense, and when one examines this concept with the office of the future in mind, one must begin with the "word". With its historical roots lodged firmly in the typewriter, Olivetti, like IBM, will be there with its multifarious solutions to office automation needs.

Mael doomed to stay in second place

UNTIL three years ago Mael, Italy's second computer company, seemed to be the only other runner in the two-horse national hardware race. Today, however, Italy's market has become measurably more competitive with six participants trailing off the unmatched front runner, Olivetti.

Even so, of all Italy's home-bred manufacturers — Italdata, Tesak, Elit-Micromegas, Salco and Omega Data — only Elit-Micromegas of Pisa looks sufficiently pioneering to represent a threat to Mael's No 2 position in the immediate future.

Mael's progress seems almost

of Mael's, and claims the highest sales and installation quota in Europe, even higher than that scored in Italy. Designated Mael Computer GmbH, the German agency boasts over 1,500 installations, and apart from a strong user base in general office system applications, has made a particularly powerful impact on the construction industry.

Another effective European agency for the company has been the UK dealer Computer Ancillaries of Egham. This company has chalked up an impressive user-base of about 600 installations, and through its countrywide dealer network has secured orders with a number of major corporations. The company's chairman, Ian Skinner is particularly enthusiastic about the Italian organisation's latest product, the Mael 5300, which was launched at Hanover this year and made its first UK appearance at the International Business Show.

"The Mael 5300", he explained, "is probably the most saleable product in the Mael line because it effectively brings the 5000 series down to a level comparable with the high end of the microcomputer market."

well as commercial environments. This unit is called the Mael 1000.

The 1000 is ostensibly a stand-alone table top data preparation unit, which is easily programmed and can provide data on an IBM compatible floppy disc. It can deal with relatively simple calculation, statistical or table look-up tasks, and may also be linked to a number of peripheral devices, such as a matrix printer or magnetic tape transport.

The Mael 2000, by contrast, has proved as popular in the UK as it has in Italy and Germany. Computer Ancillaries featured the 2100 system conspicuously on its stand at the IBS. This self-contained small system is available with a range of software packages, and in this country may be acquired complete with printer, 32K CPU, screen and a megabyte of floppy disc storage at a cost of £8,450.

Thus Italy's second computer company can be seen to be offering an effective and low-cost solution to the business

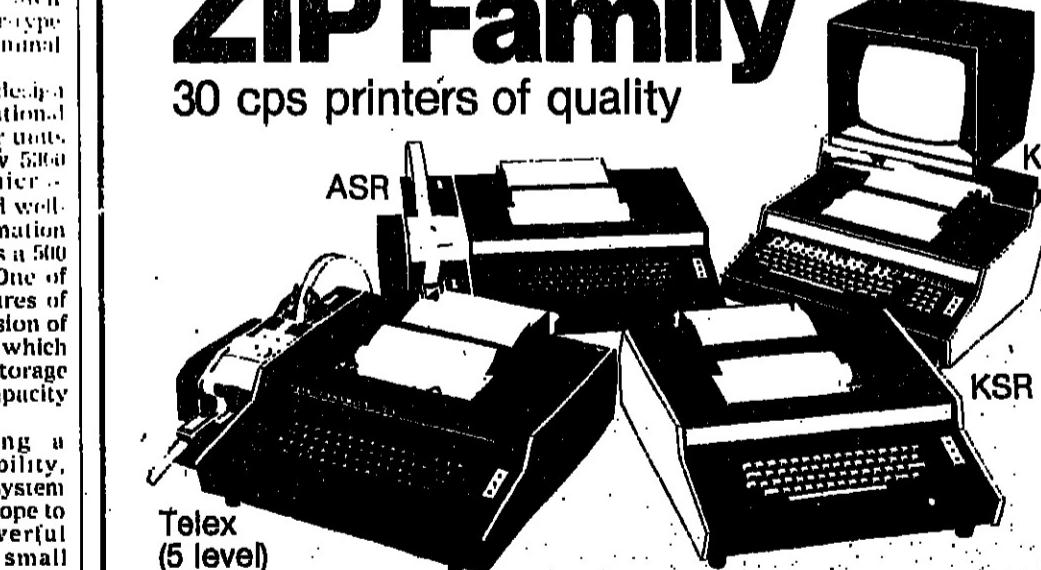
market. Yet by limiting itself in its products and marketing strategy it has clearly chosen a safe and wise path, so far. In 1977 doubled its turnover on the previous year, and in the first six months of this year doubled the sales figures recorded for the whole of 1978.

But even if the company can stage this exceptional growth rate, it is still doomed to remain a four-stone weakling behind the might and power of Italy's volatile and inspired first computer company.

The Mael 3000, by contrast,

Data Dynamics ZIP Family

30 cps printers of quality



DD 912 and 920 VDUs
smart terminals at a dumb price



Also Teletype 43,
Data Dynamics
303 and 390, tape
punches etc.

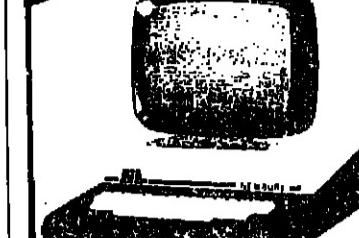
Full service training
facilities available

ddg Data
Dynamics
Group

Data House, Springfield Road, Hayes, Middlesex.
Telephone: 01-948 9731 Telex: 936429

SPOTLIGHT ON ITALY-2

NL New from NEWBURY



Smart micro-based Visual Display Terminal Model 7000/700C

- Teletype compatible
- 24 lines of 80 characters per line
- Selectable baud rates from 50 to 19,200 baud
- CCITT V24 or current loop interface
- Selectable half or full duplex
- Green phosphor display
- Plus XY cursor address and page mode
- Single end user price from £495



Matrix Printer
Model 8300

- 125 CPS Printing speed
- CCITT V24 (RS232) interface
- ASCII 96 character set
- 80 characters per line
- pin feed platen
- £540

All prices include
modem and power
plus free delivery in UK

Newbury Laboratories
Ltd

Head Office and Sales:
King Street, Odham,
Hampshire RG25 1MN.
Tel: 025 671 2910
Telex: 858815
Sales and Service:
North East
Tel: York (0904) 412043
North West
Tel: Stockport 061 491 0134
Midlands
Tel: Birmingham 021 707 770

One false step - you're down a mineshaft

Fintel means...

the full range of viewdata services

No false steps.

Stuck. Your way blocked. No route through. In viewdata jargon, down a mineshaft. That's where you could be if you venture alone into the increasingly complex world of videotex, Prestel, viewdata.

Fintel is the centre of excellence in viewdata, its expertise in viewdata economics, marketing and production will make the new medium work for you.

Fintel is already doing this for clients such as American Express, Bacon & Woodrow, Bank Lomia, BICC, Cable & Wireless, Granada, INSAC, Industries Logica, New York Times and Sabre Selection, and is a leader in the international development of electronic publishing.

Find out about Fintel's full range of viewdata services. Don't take that false step.

To: Alan Lister, or David Lester, Fintel Limited, 1 Paddington Lane, London EC3R 8AA Tel: 01-586 7432
Fintel - jointly owned by the Financial Times and Pintel - the leading business information provider in Prestel, the viewdata professionals.

Name _____

Company _____

Address _____

Tel No. _____

Signature _____ Date _____

10/1/80

SPOTLIGHT
ON
ITALY-1

One of the largest private data processing operations in the world is run as co-operative venture by New Zealand's banking industry. It is the only system that serves a country's entire banking

community and it is still growing. Stephen Bell, formerly of Computer Weekly and now editor of NZ Data Processing, reports on the progress and plans of this highly successful project.

New Zealand leads in banking systems

NO-ONE can move in New Zealand data processing circles for more than a few days without hearing about a world-beating banking system the country has. The Databank bureau is constantly being cited as evidence that this little country is not a backwater of the computer world; it can even, occasionally, take a lead in the application of

computer technology.

The smallness of the country is, indeed, the chief reason why it has managed to evolve a system fairly described as unique — the world's only countrywide services operation catering for the DP needs of all its banks.

There are banking consortium arrangements for computer services elsewhere in the world, of course, notably Scandinavia, Japan and the US, but these involve only some of the country's banks.

New Zealand has only five trading banks, three shared with Australia. As these cater for a population of only three million, it clearly makes a good deal of sense for banks to combine service operations, rather than each running a separate computer system catering for a small number of account holders.

The Bank of New Zealand began looking at computer use in 1968, to supplement and relieve the pressure on the courier service, kept busy running documents to and from bank branches all over the country.

At about the same time, another of the five, the National Bank (part of the British Lloyds group) was also examining computer solutions. The two compared notes and decided on a joint approach. In the following year the three others — the Commercial Bank of Australia, the Australia and New Zealand Bank, and the Bank of New South Wales — accepted an invitation to join the consortium.

Had any of the banks earlier installed equipment on its own, said Databank spokesman Malcolm Shaw, the venture incorporated in 1967 as Databank would probably never have got off the ground. As well as its smallness, New Zealand can probably thank the scarcity of computer expertise in the country at the time. If more experts had been available, the banks might have gone their separate ways.

In the event, the next three years saw a gradual take-on of the Databank venture by all five banks: the Bank of New Zealand first, by mid-1967, followed later that year by the National Bank and the following year by the three Australian banks. By November 1969, all branches were using the Databank batch service, based on six IBM 360/40s, one in each of the country's biggest population centres.

Cheques and other documents would be collected by couriers from each branch and run to the nearest computer centre for processing.

The basic services of cheque clearing and processing of a branch's internal accounts were the first applications handled.

The data for cheque clearing is captured from magnetic ink encoding on the cheque forms. The practice which above all made the system workable was the adoption of a uniform customer number by all five banks. This is still claimed as a unique feature. It identifies each customer regardless of the number of accounts operated. The individual account is indicated by a suffix.

The cheque form also carries a serial number, a code number for each of the five banks, a code for the branch and a code indicating the transaction type. After the cheque is written out,

by
Stephen
Bell

branch staff add to the line another magnetic ink figure showing the amount of money involved.

The expansion of Databank's workload led in due course to the installation of 360s in other parts of the country, while the busiest installations, in Wellington, the capital, and Auckland, the largest population centre, were upgraded to 370/145s.

These upgrades served for a time, but the growing volume of business and the take-on of new applications soon had the consortium looking at the possibility of an online network. It was a logical development to centre the network on the bigger Auckland and Wellington

The CPCs, of course, are also exchanging data with each other. From the point of view of the Wellington centre, this means a total of about 28 million bytes of input and 130 million bytes of output per night.

In addition to supporting a high data rate, the network set-up was required to be flexible to cope with the terminals of various types which were being requested for installation at the 100 branches themselves. A variety of protocols had therefore to be supported.

IBM produced no suitable equipment at the time, said Shaw, and the solution eventually adopted was to front-end each IBM mainframe with a

clearing and accounting & money transfer service. The network have been reduced, and the system will have to handle bankers' credit and debit cards, also being introduced in New Zealand.

Databank now also says a range of specialised service-oriented connected banking process. These banking account reconciliation service, and an account analysis package. There are currently some 7,000 users of these services.

Many of the core government departments and larger companies, with their own computer equipment, recording employees' payments on magnetic tape input to the Databank system.

Such "paperless" banking now accounts for about 8% of New Zealand banks' business. This is described by Shaw as "a reasonable proportion"; of course, it is nowhere near the size of the UK's.

Shaw admits that, at the moment, Databank has put "overly high expectations" on electronic banking. He thought that "technology" would provide the answers, he says, but it is now seen that people are the limiting factor.

Databank is owned jointly by the five banks, and run by an independent chairman and an independent board consisting of representatives of each bank.

The banks own their own minis and controllers, and are charged on a throughput basis for use of the network.

With five competitive machines, using the 360/40s as subsidiary nodes.

Under the new system, cheques and deposit records collected from each branch by a courier are taken each evening to the nearest of the small centres, known as Network Centres. The machines here still do the basic accounting, but for updating of the master files, the data is sent down the line to either the Auckland or Wellington node where these files are kept. These two nodes, known as Central Processing Centres, receive all data online from the other banks, and even across to accounts at another bank in the same bank's network.

Cheques and other documents would be collected by couriers from each branch and run to the nearest computer centre for processing.

The basic services of cheque clearing and processing of a branch's internal accounts were the first applications handled.

The data for cheque clearing is captured from magnetic ink encoding on the cheque forms. The practice which above all made the system workable was the adoption of a uniform customer number by all five banks. This is still claimed as a unique feature. It identifies each customer regardless of the number of accounts operated. The individual account is indicated by a suffix.

The cheque form also carries a serial number, a code number for each of the five banks, a code for the branch and a code indicating the transaction type. After the cheque is written out,

Berlin seminar on commercial use of US Space Shuttle

THE new manufacturing and processing techniques that will be made possible by the US Space Shuttle are to be discussed in a seminar in Berlin next month.

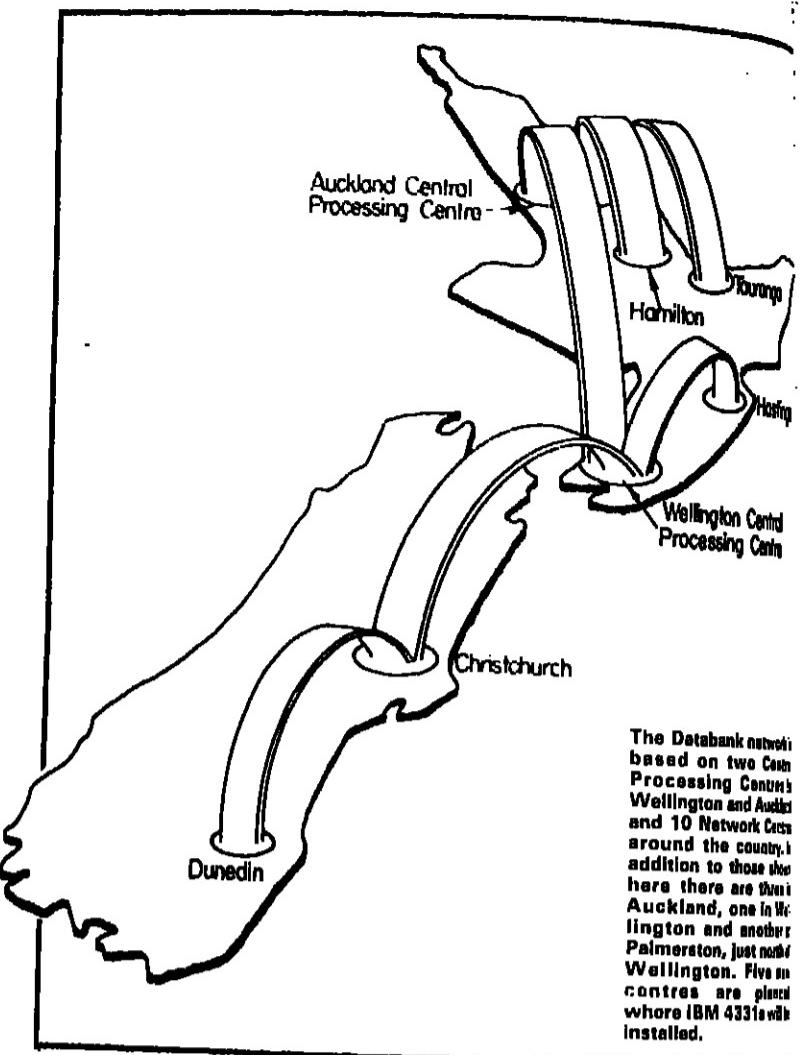
Entitled Utilisation of the Space Shuttle, the seminar will be co-ordinated by Dr Joel Levy, a

consultant to the National Aeronautics and Space Administration, who has predicted that by the year 2000 the shuttle space transportation system could generate up to \$80 billion in commercial revenues.

Among the topics to be covered during the

seminar are the production of semiconductor crystals, pharmaceutical materials and thin-film electronic devices in zero gravity.

More details on the seminar can be obtained from the Congress Organisation, Joachimstaler Strasse 19, D-1000 Berlin 15.



Fujitsu strengthens its foothold in Australia

JAPAN'S Fujitsu has picked up two important orders in Australia bringing its base of medium and large-scale mainframes there to six. It has finally landed the Australian Bureau of Statistics contract with its biggest machine, the M-200, and the first M-160F outside Japan is going to an Adelaide building society.

The Bureau of Statistics contract was almost landed by Fujitsu with an M-180 two years ago, but after a suggestion that individuals associated with Fujitsu had been in a privileged

position during the selection process, Australian premier Malcolm Fraser ordered a re-run of the selection.

Price-performance and locally procured content are reported to have won Fujitsu the contract on the second round. Valued at \$US 25 million, the machine will start as a 6Mb M-200, but will be extended to a dual processor with two processors sharing 12 megabytes of main memory. It will ultimately be backed by 20,000 megabytes on disc. It will run under the OSIV/F4

operating system, which is Fujitsu's rewrite of IBM's MVS. MVS of the UK will supply its Testmaster program and the Status information retrieval package developed at Harwell atomic research laboratories will be used.

The Australian high level job control language JOL from Clarke Computer Software will also be used.

Online Computer Services of

Adeelaide, the data processing

subsidiary of the Co-operative

Building Society, is installing a Fujitsu M-160F early this year.

The three megabyte mainframe, worth about \$1.2 million, will be used for the building society's own processing and to provide services to four other building societies.

The Fujitsu F-series

consists of four models announced in response to IBM's 4300 series and extending its power from below the 4331 to well above the 4341; the M-160F is the largest and will run under Fujitsu's OSIV/XB operating system.

The need to locate in an area that would attract a large number of technical professionals was one of the main reasons for choosing Vancouver as the new site, said a company spokesman.

The move follows the trend set by several semiconductor manufacturers in expanding outside the growing restrictions on both people and housing found in California's Santa Clara valley, the home of the industry.

Earlier this year, National revealed plans to expand its facility in Greenock, Scotland with a £45 million extension (CW, July 26).

A 200,000 square foot factory

is to be built that should eventually employ some 2,000 people. It is scheduled to be operational by 1981.

The need to locate in an area that would attract a large number of technical professionals was one of the main reasons for choosing Vancouver as the new site, said a company spokesman.

The move follows the trend set by several semiconductor manufacturers in expanding outside the growing restrictions on both people and housing found in California's Santa Clara valley, the home of the industry.

Earlier this year, National

revealed plans to expand its

facility in Greenock, Scotland with a £45 million extension (CW, July 26).

A 200,000 square foot factory

is to be built that should eventually employ some 2,000 people. It is scheduled to be operational by 1981.

The need to locate in an area that would attract a large number of technical professionals was one of the main reasons for choosing Vancouver as the new site, said a company spokesman.

The move follows the trend set by several semiconductor manufacturers in expanding outside the growing restrictions on both people and housing found in California's Santa Clara valley, the home of the industry.

Earlier this year, National

revealed plans to expand its

facility in Greenock, Scotland with a £45 million extension (CW, July 26).

A 200,000 square foot factory

is to be built that should eventually employ some 2,000 people. It is scheduled to be operational by 1981.

The need to locate in an area that would attract a large number of technical professionals was one of the main reasons for choosing Vancouver as the new site, said a company spokesman.

The move follows the trend set by several semiconductor manufacturers in expanding outside the growing restrictions on both people and housing found in California's Santa Clara valley, the home of the industry.

Earlier this year, National

revealed plans to expand its

facility in Greenock, Scotland with a £45 million extension (CW, July 26).

A 200,000 square foot factory

is to be built that should eventually employ some 2,000 people. It is scheduled to be operational by 1981.

The need to locate in an area that would attract a large number of technical professionals was one of the main reasons for choosing Vancouver as the new site, said a company spokesman.

The move follows the trend set by several semiconductor manufacturers in expanding outside the growing restrictions on both people and housing found in California's Santa Clara valley, the home of the industry.

Earlier this year, National

revealed plans to expand its

facility in Greenock, Scotland with a £45 million extension (CW, July 26).

A 200,000 square foot factory

is to be built that should eventually employ some 2,000 people. It is scheduled to be operational by 1981.

The need to locate in an area that would attract a large number of technical professionals was one of the main reasons for choosing Vancouver as the new site, said a company spokesman.

The move follows the trend set by several semiconductor manufacturers in expanding outside the growing restrictions on both people and housing found in California's Santa Clara valley, the home of the industry.

Earlier this year, National

revealed plans to expand its

facility in Greenock, Scotland with a £45 million extension (CW, July 26).

A 200,000 square foot factory

is to be built that should eventually employ some 2,000 people. It is scheduled to be operational by 1981.

The need to locate in an area that would attract a large number of technical professionals was one of the main reasons for choosing Vancouver as the new site, said a company spokesman.

The move follows the trend set by several semiconductor manufacturers in expanding outside the growing restrictions on both people and housing found in California's Santa Clara valley, the home of the industry.

Earlier this year, National

revealed plans to expand its

facility in Greenock, Scotland with a £45 million extension (CW, July 26).

A 200,000 square foot factory

is to be built that should eventually employ some 2,000 people. It is scheduled to be operational by 1981.

The need to locate in an area that would attract a large number of technical professionals was one of the main reasons for choosing Vancouver as the new site, said a company spokesman.

The move follows the trend set by several semiconductor manufacturers in expanding outside the growing restrictions on both people and housing found in California's Santa Clara valley, the home of the industry.

Earlier this year, National

revealed plans to expand its

facility in Greenock, Scotland with a £45 million extension (CW, July 26).

A 200,000 square foot factory

is to be built that should eventually employ some 2,000 people. It is scheduled to be operational by 1981.

The need to locate in an area that would attract a large number of technical professionals was one of the main reasons for choosing Vancouver as the new site, said a company spokesman.

The move follows the trend set by several semiconductor manufacturers in expanding outside the growing restrictions on both people and housing found in California's Santa Clara valley, the home of the industry.

Earlier this year, National

revealed plans to expand its

facility in Greenock, Scotland with a £45 million extension (CW, July 26).

A 200,000 square foot factory

is to be built that should eventually employ some 2,000 people. It is scheduled to be operational by 1981.

The need to locate in an area that would attract a large number of technical professionals was one of the main reasons for choosing Vancouver as the new site, said a company spokesman.

The move follows the trend set by several semiconductor manufacturers in expanding outside the growing restrictions on both people and housing found in California's Santa Clara valley, the home of the industry.

Earlier this year, National

revealed plans to expand its

facility in Greenock, Scotland with a £45 million extension (CW, July 26).

A 200,000 square

Appointments

THE NEWSPAPER COMPUTER PEOPLE RELY ON

Appointments

1980 OPPORTUNITIES WITH TANGENT

TANGENT COMPUTER SERVICES is a successful Software Support organisation with diverse U.K. and international activities. As part of our current expansion programme, we have recently opened an office at the World Trade Centre in New York to control our U.S. operations. In the U.K. our head office requires to augment its management team by the following positions:-

RESOURCES MANAGER:

We are looking for a person with sufficient D.P. experience and management skills to assist with the selection and management of both permanent and contract staff. The diverse nature of the position will necessitate some travel both in the U.K. and overseas.

SALES EXECUTIVE:

To enhance our substantial contract activities, we seek a further sales executive with proven experience. The personal prerequisites are self-motivation and an understanding of today's data processing techniques.

COMPANY SECRETARY:

The need is for a mature person with proven administrative skills and preferably an understanding of accounting practice.

- * The importance attached to the above positions is reflected in the excellent salary
- * and benefit packages which will be offered to the successful applicants.

Applications will be treated in the strictest confidence and should be addressed to:-



The General Manager
TANGENT COMPUTER SERVICES
1 Eastern Road
Romford, Essex
RM1 3PJ

NORTH WEST AREA
ANALYST/PROGRAMMER

Commencing Salary £5,807 per annum

A vacancy exists in the Management Services Department of our factory at Bromborough for an Analyst/Programmer to join a small team working on our recently installed Hewlett-Packard 3000 Computer.

Applicants should have at least two years' programming experience using Fortran or an Assembler Language. Analytical experience is also desirable.

In addition to the above, applicants should be educated to GCE 'A' level or equivalent - the subjects to include Mathematics. Preferred age range is mid-twenties.

We offer excellent conditions of employment with many social and recreational amenities and a salary rising to a maximum of £8,708 per annum.

Applications in writing stating qualifications and experience to date should be sent to: The Personnel Services Manager, Van den Bergs & Jurgens Limited, Stadium Road, Bromborough, Wirral, Merseyside L62 3NU.



A UNILEVER COMPANY

COMPUTER WEEKLY

Classified Department, Dore House,
Stanford St, London SE1 9UL

Box Numbers: Should be added next to the box number in the relevant column of Computer Weekly at the above address.

Classified Rates: £1.14 per centimetre
19 x 3 cols. £1,601. 39 x 3 cols. £1,291.
Half Page (19 x 7) £1,100. 39 x 5 cols. £1,130.
Full Page (39 x 7) £1,600. 39 x 6 cols. £1,300.

Copy Deadline: 3.30 p.m. Monday prior
Thursday publication date. Complete
artwork up to 11 a.m. Tuesday. Advanced
space reservation is advisable.

LONDON Assistant Classified Manager:
Chris Prigo 01-321 021
Mike Polver 01-321 021
Ann Wolpert 01-321 021
Vic Smart 01-321 021
Dennis Smith 01-321 021
Jan Faust 01-321 021
Julie Hamblard 01-321 021

MANCHESTER/GLASGOW
Owen Kelly 061 972 021
Glen Aiken 061 972 021

BIRMINGHAM/BRISTOL
Steve Harris 021 354 421

Excellent Contract Opportunities

In line with our rapid growth rate we have a continuous requirement for skilled and dedicated professional contract staff.

MARK IV Analyst/Programmers UK, USA, and Overseas

Senior Analyst/TP Designer West End

HP 3000 Programmers City

Data Point Programmers N. London

CICS Assembler/Programmer S.E. Essex

IBM and ICL Analyst/Programmers Essex

Assembler/CORAL/PLI Programmers N. Kent

For more information telephone.



Alan King
TANGENT COMPUTER SERVICES
4 Eastern Road
Romford, Essex
Tel: Romford 44181/2 28238

KUWAIT - FIELD ENGINEER

c. £12,500 Tax Free + Benefits

A substantial Danish group has a well-established computer services operation working in Kuwait and expansion has created the need for a computer field engineer to be responsible for equipment servicing throughout the country. Installations comprise DEC PDP 11 cpu's and peripherals with some CDC disk units and Tektronix/Calcomp graphic display units. The company provides business computer systems, software consultancy and computer based telephone systems. Experienced engineers with a sound background of servicing these types of hardware will find this an exceptional opportunity to join an effective and expanding European group in one of the most stable Middle East locations.

The company is paying an attractive salary for the area together with good benefits including a very generous car allowance, return air fares to home country for 1 month's annual holiday, and free furnished, air conditioned accommodation. The appointment is initially for 2 years with 4 weeks bonus on completion and the option to continue.

The requirement is urgent and interviews will be conducted in the U.K., week commencing 21st January.

Engineers having relevant experience (programming or diagnostics knowledge would be added advantages) should telephone immediately to discuss the requirement and how to apply. Either single or married status is acceptable. Quote reference CW100-C.

CAPP ASSOCIATES Computing Services Association

01-686 9693
AMP HOUSE, THORNWELL RD,
CROYDON CR0 4AU

CLASSIFIED COPY

All classified copy should reach our offices no later than 3.30 p.m. on the Monday preceding Thursday's publication.

If complete artwork is supplied, 11 a.m. on a Tuesday.

Ring Ray Kelly for further details on 01-261 8016.

Join The Superstars Sales Executives Leeds Manchester Birmingham (mini computer and word processing)

On Quota Earnings in Excess of £17,000 p.a. + Car + Fringe Benefits

Without doubt one of the brightest stars, within the computer industry today is Wang UK Limited. Their advanced technology and well designed screen based word processing and computer systems coupled with planned marketing strategies has made them market leaders in their field.

Due to their continued expansion, SCR has been retained to recruit further Sales Executives to be based both in LEEDS, MANCHESTER and BIRMINGHAM.

Applicants should be self motivated, confident and possess experience of selling computer systems or word processing and have a minimum of three years successful sales experience. The ability to liaise with senior management should also be apparent in your background as you should have the ability to negotiate medium to large size contracts.

Realistic quota objectives, excellent technical and management support coupled with unlimited prospects for career advancement and comprehensive product training are offered together with an excellent income package and a wide range of incentive bonuses.

Interested candidates should contact, in the first instance:

TONY BLAKELEY: 061-839 0427

OR: 061-682 8996 (evenings and weekends)

REPLIES WILL BE TREATED IN THE STRICTEST CONFIDENCE.

London 01-836 0871 3 Mandeville Place, Wigmore Street, London W1M 8BL
Birmingham 021-238 3781/36 37 Great Charles Street, Birmingham B3 2JL
Manchester 061-633 0427 Blackfriars House, The Parsonage, Manchester M2 2JA

Specialist Computer Recruitment Ltd

Aycliffe and Peterlee Development Corporations

SYSTEMS ANALYST/DESIGNER
(TWO-YEAR FIXED TERM APPOINTMENT)
(Readvertisement)

GRADE VIII

£6,806-£7,088 p.a. plus £10 per month "on account" pending result of comparability study

Applications are invited for the above post which is a joint appointment with the Peterlee and Aycliffe Managing Director. Duties include working on computer applications in all departments, statistical promotion analysis, developing and maintaining computer packages and, in addition, providing support to industrial clients.

Applicants should preferably be graduates in computer technology, with a high level of responsibility in a central role, reporting directly to the Managing Director. Duties include working on computer applications in all departments, statistical promotion analysis, developing and maintaining computer packages and, in addition, providing support to industrial clients.

Attractive fringe benefits, payable in appropriate cases, may include rental-housing accommodation and settling-in expenses, and an essential car, subject to approval.

The position is highly responsible and the successful applicant will be required to pay a medical examination. Previous experience need not apply.

Application forms may be obtained from the undersigned or by telephoning St. Taylor St, Est. 208 ext. E.C. SIMPSON, Director of Administration and Finance, Aycliffe and Peterlee Development Corporations, Yoden Way, Peterlee, Co. Durham, Telephone: 0708 833568.

EXPERIENCED COBOL PROGRAMMERS
IBM INSTALLATION - SE LONDON

Up to £7,893 p.a.

Two experienced COBOL Programmers are required to assist with the development of various interesting applications.

New projects scheduled include on-line financial and Property Information Systems, so some knowledge of both would be advantageous. Interactive programming skills are installed using QUOTA. Come and join a progressive organisation based in modern premises at Colindale, consisting of some 60 development and operational staff utilising the IBM 370/138 processor. We offer good career prospects, a competitive starting salary, plus flexible working hours, in excess of five weeks' leave and a generous pension scheme.

Realistic quota objectives, excellent technical and management support coupled with unlimited prospects for career advancement and comprehensive product training are offered together with an excellent income package and a wide range of incentive bonuses.

Interested candidates should contact, in the first instance:

TONY BLAKELEY: 061-839 0427

OR: 061-682 8996 (evenings and weekends)

REPLIES WILL BE TREATED IN THE STRICTEST CONFIDENCE.

MYRIAD COMMUNICATIONS ENGINEERS

Berkshire Based

PRODUCT APPLICATIONS ENGINEER -NETWORK CONTROL:

c£7500

This is an excellent opportunity for an experienced communications engineer (ideally with an appreciation of software) to join a tremendously successful team and be trained in one of the newest and most demanding aspects of data communications technology. The successful candidate will provide both pre- and post-sales support to clients and will play a vital role in the department as specialist in a rapidly developing area. He/she will provide technical expertise wherever needed including advising on the application of the network control products and tuning both hardware and software to provide optimum performance.

With a strong commitment to future development the company is one of the fastest growing organisations in the UK and a leader throughout its scheme with free life assurance, generous relocation expenses where appropriate and an interesting future at the forefront of communications development.

SYSTEMS ENGINEER -NETWORK DESIGN:

c£7500

If you can offer sound experience (i.e. 3 years or more) in a data communications environment and are now seeking to progress into a design role this is an ideal move. As a System Engineer you will hold responsibility for defining a client's total data communications network requirements and designing and specifying an efficient and economic solution using the comprehensive range of equipment available. You should offer knowledge of digital techniques and the function of each component in a network coupled with the ability to relate to both technical and non-technical customer personnel.

SW2/1001/CW

MYRIAD APPOINTMENTS LIMITED
30 Fleet Street London EC4Y 1AA
01-353 0981 24 HRS.

DAI

UP TO £16,000 - GERMANY
UP TO £11,000 - U.K.

Digital Applications International is an established systems house with a reputation for excellence in the application of mini and micro computers to real time processes.

We are working on - plant process control and monitoring for applications in North Sea oil and chemical/petro-chemical industries - laboratory and automation - mechanical handling - medical systems - management information systems.

With DAI you will widen your experience working on computer hardware from

DEC Honeywell - Ferranti - Data General - Siemens - Motorola - Intel - Philips - AEG - Foxboro

We keep a PDP 11 in-house for software development and word processing.

We have offices in London, Manchester and Frankfurt.

If you are a computer professional with an engineering or scientific background, this is an

opportunity to join an expanding group which provides challenge, recognition and real opportunity for personal development.

We are recruiting at all levels from analyst/programmer to project leader for work in the UK and abroad.

The salaries, dependent upon seniority and experience, are only part of the remuneration package. There are perks like profit sharing, relocation expenses, site work allowances and PPP medical cover. There is a company car scheme for the more senior positions.

If you are one of the professionals we seek, please reply to any of our offices, with your career resume. Alternatively, write or telephone for an application form.

Barbara Denhol,
DAI Limited,
Axtell House,
21 Warwick Street,
London
W1F 5RB
Tel. 01-734 5466

Patricia Hewitt,
DAI Limited,
Alpha House,
Rowlands Way
Wylthenshawe,
Manchester M22 6RG
Tel. 061-438 3122

Roy Stedman,
DAI GmbH,
Herzogstr. 81,
6076 Neu Isenburg,
Nr. Frankfurt,
West Germany
Tel. 06102-58388

A COMPUTER WEEKLY HANDBOOK **BASIC FILE DESIGN**

BY OWEN HANSON

This book provides a brief but authoritative review of the most frequently used file organisation techniques, and of related subjects such as data security and software aids.

The file designer is shown how to choose between the available techniques on the basis of known or forecast information rather than rule-of-thumb, and methods of ensuring that the correct choice has been made are given.

New work carried out by the systems analysis division of the City University Business School, London, is linked with previously published information to provide methods of optimising the performance of sequential, direct and indexed files. Marked improvements can be achieved, particularly with direct files, which are worthy of wider use than at present.

Students of data processing, lecturers and practitioners should all find the book invaluable, particularly because it provides a great deal of information and many illustrations in a very compact format.

£1.50 including postage
Rates for bulk orders on request

Available from:
General Sales Department
IPC Electrical/Electronic Press Ltd.
Dorset House, Stamford Street
London SE1 9LU

NORTH WEST VACANCIES

STOCKPORT to £6,500
COBOL PROGRAMMER
Our client, a progressive IBM installation is seeking a COBOL Programmer with sound IBM experience preferably gained in a manufacturing environment.

SOUTH MANCHESTER to £7,000
SYSTEMS ANALYST

This medium sized IBM installation offers a wide range of involvement for an experienced Analyst with good IBM knowledge and an engineering/manufacturing background.

PRESTON £6,500
SYSTEMS ANALYST

If you have around 2 years experience in a fast moving environment our client can offer a fast track IBM hardware and systems. You need good experience, on any hardware. Programming knowledge on board.

ROSSENDALE to £6,000
SENIOR PROGRAMMER

This go-ahead organisation requires a Senior Programmer with good COBOL skills preferably on Honeywell hardware. You will be involved in a wide range of developments, and must be self-motivated and willing to take responsibility.

LIVERPOOL £7,300 + bonus
SENIOR ANALYSTS

This large organisation seeks a number of Senior Analysts to cover major developments on mini and mainframe hardware. A background of large system development together with a good academic record, preferably to degree level!

MANCHESTER to £7,000
ASSEMBLER PROGRAMMERS

If you have around 2 years IBM ASSEMBLER experience our client will offer involvement in Data-base and on-line systems on IBM 370, and later 4341. Experience of CICS and relational systems an advantage but not essential.

CHESHIRE c £7,500
REAL-TIME HARDWARE DESIGN

This prestigious client requires further hardware design expertise in the real-time process control area. Conditions of employment are excellent as are career progression possibilities.

BURNLEY c £6,000
RPGII PROGRAMMER

This small, friendly installation is seeking a young RPGII Programmer with over 12 months experience. Hardware is IBM S34 with on-line developments.

MERSEYSIDE to £6,500 + bonus
SENIOR ANALYST/PROGRAMMERS

This major IBM user is committed to large scale developments and requires additional staff with over 2 years experience. You should combine good COBOL skills with some analysis involvement. Machine background is not important as excellent training is available.

MERSEYSIDE to £6,500 + bonus
SENIOR ANALYSTS

Our client offers training on IBM CICS, DL/I and SNA techniques where required if you can combine a programming background with in-depth analysis experience. This is a unique opportunity with a progressive company.

MANCHESTER to £6,500
ANALYST/PROGRAMMERS

This expanding company now needs a number of Analyst/Programmers with over 2 years experience of ICL hardware and COBOL, together with some analysis involvement. This is a fast moving company and offers a wide variety of work.

MANCHESTER to £7,000
SYSTEMS ANALYSTS

This company will install a 4341 later this year, and requires Analysts with good IBM experience together with some on-line and data-base exposure, preferably in a retail or general commercial installation. Projects are excellent.

MANCHESTER to £6,000
ASSEMBLER PROGRAMMERS

If you have around 2 years IBM ASSEMBLER experience our client will offer involvement in Data-base and on-line systems on IBM 370, and later 4341. Experience of CICS and relational systems an advantage but not essential.

Phone STEVE SYKES on LEEDS (0532) 441185 (daytime) or LEEDS 052417 (evenings and weekends) for these and other NORTH WEST vacancies, or write with brief details (no stamp required) to Lorian Computer Services, FREEPOST, Leeds LS7 3YY.

CONTRACTS

North West

Programmers - ICL New Range - VME/B

Long term - £240 p.w.

Systems Analysts - Good Systems experience on any hardware

Large Systems - Long Term - £265 p.w. +

Programmers-Cobol-Staffs Any hardware £250 p.w.

Phone LEN CRAY on LEEDS (0532) 441185 (daytime) or LEEDS (0532) 687118 (evenings and weekends) for these or any CONTRACT VACANCIES, or write with brief details (no stamp required) to Lorian Computer Services, FREEPOST, Leeds LS7 3YY.

LORIEN COMPUTER SERVICES
OCS House,
Servia Road, Leeds LS7 1NJ
Telephone 0532 444185



JBA

Product Manager

London up to £15,000 plus car
Candidates with sound sales and marketing background are invited to apply for a new appointment to take responsibility for launch of an information retrieval system. Must have systems sales experience and potential to manage a significant group.

Contact: Jim Baker

Programmer Analysts

Amsterdam to £12,700 + benefits
Career positions involving a mix of analytical and programming activities in the development of a large management information system. Applicants must have experience of one or more of the following: IBM 370/138, OS/VSI, VM 370, TOTAL, ENVIRON, DL/1, EASYTRIEVE. Great benefits and full relocation offered.

Contact: Andy Wright

IBM System 34 Consultants

Berkshire c. £9,000
An expanding and profitable software house has an urgent need for commercial Analyst/Programmers with extensive experience of designing systems to run on any of the following: IBM System 3, 32 or 34. Applicants should be business minded and competent RPG II Programmers.

Contact: Margaret Stevens

Systems Analysts

Coventry c. £6,200 + Overtime
A multi-national engineering company is seeking SYSTEMS ANALYSTS to assist with a major systems redevelopment programme involving advanced technology. Applicants should have at least 1 years systems design and development experience. Familiarity with IBM 370 terminology would be an advantage.

Contact: Bev Stevens

Senior Consultants

London c. £10,000
One of the largest software houses in Europe wishes to appoint Senior Systems Consultants. Candidates should have six years in d.p. with most of it spent in design and development of commercial systems as a DPM or Project Manager on IBM, ICL or Honeywell mainframes.

Contact: Jim Baker

Production Control Systems

c. £7,500
A medium sized engineering company is seeking a SENIOR SYSTEMS ANALYST to work on the development and implementation of production control systems within their UK Group. Applicants should have a minimum of 3 years commercial analysis and design experience with a bias towards production or manufacturing systems. Experience of an IBM 370 environment would be an advantage.

Contact: Bev Stevens

Compiler Designers

Near Windsor £8,000 - £10,000
One of the leading mini-computer manufacturers wish to increase their software development group to meet the demand for efficient and versatile systems in the various sections of d.p. The Company's emphasis on easy-to-use systems has many implications for the design of its compilers for the 1980's. Applicants must have some practical knowledge of compiler design. If you know that you can design the best compiler, now is your chance to show your ability to apply innovative and creative techniques.

Contact: Mike Creamer

Programmers (Mini-computers) up to £6,100
Senior Programmers up to £7,500

PLUS MORTGAGE SUBSIDY

Our Hampshire client is installing a new Rediffon R830 machine early in 1980 and wish to recruit several Programmers to form a new section to deal with financial, accounting and insurance projects. Candidates must be fully conversant with applications programming in a high-level language (e.g. COBOL) on a proprietary mini-computer system. Knowledge of word-processing would be an added attraction. The company offers tremendous benefits including a mortgage subsidy, non-contributory pension, generous relocation package, etc.

Contact: Mike Creamer

JAMES BAKER ASSOCIATES,

International Personnel Consultants,

32 Savile Row, London W1

Tel: 01-439 9311.

N. LONDON

This small but sophisticated installation is expanding in on-line/real-time developments and distributed processing is planned. Local and remote terminals are currently on-line to the mainframe computer and a larger terminal network is being designed.

COBOL PROGRAMMERS and ANALYST/PROGRAMMERS

are required to assist in the development of Production Planning/Control projects and there is good scope for advancement.

ASSEMBLER PROGRAMMERS

are required to become involved in Software Support for the installation.

TELEPHONE Peter Barson on 01-838 8087 for further information
BARSON, TAYLOR & WARD, 107 Jermyn Street, London SW1Y 8EE

TAYLOR & WARD

Computer Graphics

The BBC Television Service has a computer graphics system which was used successfully last year to support the General Election Results programme.

Its use is currently being extended into other television programmes. We now need two professionals to join our graphic team, an experienced Senior Systems Analyst and Analyst Programmer are required to help develop these applications, on a two year contract.

Senior Systems Analyst

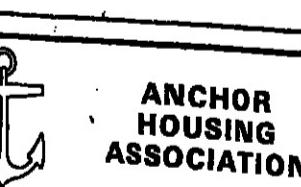
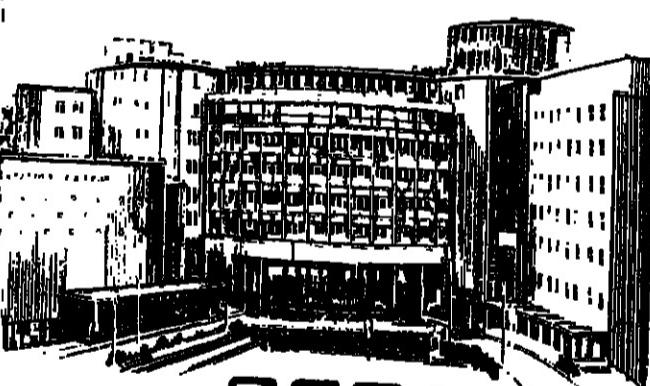
£9,591-£12,144 p.a.

Broadcasting presents a different environment to that experienced by many analysts and so a flexibility to the work involved and adaptability of approach is paramount as well as the ability to communicate effectively with artistic staff. An established record of systems design and implementation is necessary, with preference being given to candidates with computer graphics and PDP11 experience. An interest in television output, e.g. Current Affairs, Sport, etc. and art and design would be desirable. Reference 1834/CW.

Analyst Programmer

£7,341-£8,751 p.a.

An Analyst Programmer is required to help develop additional software. The successful applicant should have the experience



COULTER ELECTRONICS LIMITED
has an opening for a

SOFTWARE ENGINEER

Coulter Electronics Limited is the world leader in particle counting and testing. Our current product range already includes microprocessor based systems to support this range and to develop new products we need a Software Engineer to bring programming expertise to our existing development teams.

The successful candidates will have at least 2 years' experience of programming micro or minicomputer systems in assembly and high level languages for real time applications and experience in systems design and analysis. He will understand the terminology and interface of minicomputer systems and have the ability to take easily to the design and system engineering of mini-computer systems.

The position is particularly important since it's the first of its type within the company and coupled with our policy of expansion in our development areas, there is an excellent opportunity to help to develop the software team which will undoubtedly support our future growth.

Candidates should be of Degree standard and have the considerable experience and expertise required for this important post.

If a position will be located initially in Harpenden, but will move to North East during the first 18 months.

As a general salary, we offer a Profit Share Scheme, 4 weeks' holiday, free life assurance, a well-reduced pension and the kind of conditions to be expected from a progressive company.

Applications are invited to contact Mr. P. W. Woods, Personnel Manager, Coulter Electronics Limited, Coldharbour Lane, Harpenden, Herts. Tel. HARPENDEN 03161.

ANCHOR HOUSING ASSOCIATION**COMPUTER OPERATIONS SUPERVISOR**

C. £4,500

SENIOR COMPUTER OPERATOR

C. £3,650

Vacancies have arisen in the Association's computer department for a Computer Operations Supervisor and a Senior Computer Operator/Operations Job Controller. Applications are invited for both posts and experience of interactive computer systems would be an advantage. Normal office hours apply. Pleasant working conditions in a modern central office, 4 weeks' holiday, free life assurance and an optional pension scheme are offered.

For further details and an application form, please contact the Personnel Manager, Oxford House, 13/15 Magdalen Street, Oxford OX1 3BP. Telephone: Oxford (0865) 722281.

**Programmers****LIVERPOOL**

(DR/332) 18+ months IBM COBOL
(DR/333) 18+ months ICL COBOL
(DR/334) 2+ years IBM COBOL/PL/I
(DR/335) All Levels ICL COBOL
(DR/336) All Levels IBM COBOL ASSEMBLER
(DR/337) 3+ years ICL COBOL Supervising
(DR/338) 4+ years ICL COBOL/RPGII

to £2000
to £2000
c £2000
to £2000
to £2000
to £2000

MANCHESTER

(DR/339) 12+ months ICL COBOL
(DR/340) 12+ months IBM COBOL
(DR/341) 18+ months PDP using BASIC
(DR/342) 3+ years IBM COBOL/ASSEMBLER

to £2000
to £2000
£ Neg
to £2000

LEEDS/BRADFORD

(DR/343) 2+ years COBOL
(DR/344) 2+ years Honeywell Experience
(DR/345) 2+ years ICL 1900 COBOL
(DR/346) All Levels PDP BASIC Experience
(DR/347) All Levels ICL 1903 (GEORGE III)
(DR/348) All Levels ICL 2900 (VMEB)
(DR/349) 2+ years NCR COBOL

c £2000
to £2000
to £2000
to £2000
to £2000
to £2000
£ Neg

SHEFFIELD

(DR/350) 2+ years IBM COBOL Supervising
(DR/351) 2+ years ICL COBOL
(DR/352) 2+ years IBM COBOL/ASSEMBLER
(DR/353) 2+ years ICL 1900/2900 COBOL

to £2000
to £2000
to £2000
to £2000

TYNE & WEAR

(DR/354) 2+ years COBOL supervising
(DR/355) 12+ months IBM COBOL experience
(DR/356) 18+ months IBM COBOL ASSEMBLER

c £2000
£ Neg
to £2000

Analysts**LIVERPOOL**

(DR/357) 2+ years ICL Business Experience
(DR/358) 2+ years IBM Commercial Systems
(DR/359) 3+ years IBM Environment
(DR/360) 2+ years (plus Programming Background)
(DR/361) 2+ years Business Experience
(DR/362) 18+ months Systems/Applications

to £2000
to £2000
to £2000
to £2000
£ Neg
£ Neg

MANCHESTER

(DR/363) 2+ years IBM Environment
(DR/364) 2+ years General Business Experience
(DR/365) 2+ years Retail Environment
(DR/366) 3+ years General Systems Experience

to £2000
c £2000
c £2000
to £2000

LEEDS/BRADFORD

(DR/367) 4+ years (including programming background)
(DR/368) 2+ years IBM Business Environment
(DR/369) 2+ years Retail Environment
(DR/370) 18+ months Commercial Business Experience

c £2000
c £2000
to £2000
to £2000

SHEFFIELD

(DR/371) 4+ years ICL Business Background
(DR/372) 18+ months General Commercial Experience
(DR/373) 2+ years Business Environment

c £2000
to £2000
c £2000

TYNE & WEAR

(DR/374) 18+ months (plus programming background)
(DR/375) 24+ months General Business Experience
(DR/376) Senior Systems Analyst with Database

to £2000
c £2000
to £2000

AND MANYMORE!

Interested? Send coupon FREEPOST or phone quoting relevant reference

NAME _____ AGE _____

ADDRESS _____

PHONE HOME _____

BUSINESS (will be used discreetly)

YRS ANALYSIS _____ YRS PROGRAMMING _____

MACHINES USED _____

LANGUAGES USED _____

CV/Res SALARY _____

SALARY REQUIRED _____

JOB SOUGHT _____

REF NO. _____

Recruitment Agency _____

DATA RESOURCES AGENCY P.O. BOX 63, 8TH FLOOR, COTTHAM 10370
HOUSE HARROGATE HG1 1TS TELEPHONE HARROGATE 55711

Systems Analyst/Programmer
c. £6,500 Surrey

If you want to gain more than just experience, then situated in the heart of Surrey is a service organisation which has recently set up a new computer section centred on an ICL 2903 installation. Until now, the department has been concerned mainly with financial systems, but it is preparing to increase its workload to cover a wider range of communication based systems. To join them at this interesting time of further development they want an ambitious man or woman with management potential.

We see this as an interesting career opportunity offering you the chance to act as deputy to the computer manager in the day-to-day running of the computer section whilst playing a leading role in the design and implementation of new systems incorporating both batch and on-line facilities. It's a job that calls for a good grounding in COBOL programming and preferably some systems analysis experience.

A salary of £5,958-£6,884 will be negotiated depending on age and experience. They also offer a wide range of benefits including a 36-hour week, 4 weeks' annual holiday, superannuation scheme and yearly salary increments. Where appropriate, generous relocation expenses to this busy country town will also be paid.

So if your environment is as important to you as your career, write for an application form, quoting Position Number AES 21 to: Austin Knight Limited, 88a High Street, Egham, Surrey, TW20 9EY.

Applications are forwarded to the client concerned, therefore companies in which you are not interested should be listed in a covering letter to the Position Number Supervisor.

AK ADVERTISING

SWITZERLAND

An international banking institution has an opening for a

DEPUTY SYSTEM SOFTWARE SUPERVISOR
in its 370/148 VM Centre

The right person will have several years' experience as a systems programmer and a detailed knowledge of on-line systems, DOS/V, POWER, VSAM, CICS and Assembler. A knowledge of VM/3200 and DL/1 would also be desirable.

Candidates should have English or French as mother tongue and a working knowledge of German.

Salary commensurate with experience, first-class pension and welfare schemes and other ancillary benefits. Staff restaurant; own Sports Centre.

Please apply in writing, enclosing curriculum vitae, copies of testimonials and recent photograph to: Basile.

holts-saunders
Eastbourne

DP MANAGER
ICL SYSTEM 10
circa £8,250 EASTBOURNE

This vacancy will suit an experienced Analyst/Programmer who possesses leadership qualities. Alternatively, an experienced Manager who would like to move to one of the most pleasant parts of the South Coast — relocation expenses will be paid.

We are an expanding Publishing Company with developments to come. The successful applicant will reflect in the already generous salaries offered. Your commercial expertise should preferably have included involvement in hardware selection, organisational reviews and systems implementation. You will be given an opportunity to act in both pre and

post sales once the company's initial four weeks product orientation course is completed. The company offers an outstanding portfolio of company benefits including a minimum of four weeks holiday allowance.

Group medical insurance and life assurance is already

in operation whilst the company operates a bonus

scheme for extraordinary performance. In addition full removal assistance is available where appropriate.

Local interviews in London, Reading area or our offices will be arranged to suit individual requirements during January and February.

Ref: 10/1/D

Logistix, 360 Oxford St, London W1N 9HA
Licenced by D.O.F.

01-491 4636

DATA RESOURCES AGENCY P.O. BOX 63, 8TH FLOOR, COTTHAM 10370
HOUSE HARROGATE HG1 1TS TELEPHONE HARROGATE 55711

Recruitment Agency

DATA RESOURCES AGENCY P.O. BOX 63, 8TH FLOOR, COTTHAM 10370
HOUSE HARROGATE HG1 1TS TELEPHONE HARROGATE 55711

DATA RESOURCES AGENCY P.O. BOX 63, 8TH FLOOR, COTTHAM 10370
HOUSE HARROGATE HG1 1TS TELEPHONE HARROGATE 55711

DATA RESOURCES AGENCY P.O. BOX 63, 8TH FLOOR, COTTHAM 10370
HOUSE HARROGATE HG1 1TS TELEPHONE HARROGATE 55711

DATA RESOURCES AGENCY P.O. BOX 63, 8TH FLOOR, COTTHAM 10370
HOUSE HARROGATE HG1 1TS TELEPHONE HARROGATE 55711

DATA RESOURCES AGENCY P.O. BOX 63, 8TH FLOOR, COTTHAM 10370
HOUSE HARROGATE HG1 1TS TELEPHONE HARROGATE 55711

DATA RESOURCES AGENCY P.O. BOX 63, 8TH FLOOR, COTTHAM 10370
HOUSE HARROGATE HG1 1TS TELEPHONE HARROGATE 55711

DATA RESOURCES AGENCY P.O. BOX 63, 8TH FLOOR, COTTHAM 10370
HOUSE HARROGATE HG1 1TS TELEPHONE HARROGATE 55711

DATA RESOURCES AGENCY P.O. BOX 63, 8TH FLOOR, COTTHAM 10370
HOUSE HARROGATE HG1 1TS TELEPHONE HARROGATE 55711

DATA RESOURCES AGENCY P.O. BOX 63, 8TH FLOOR, COTTHAM 10370
HOUSE HARROGATE HG1 1TS TELEPHONE HARROGATE 55711

DATA RESOURCES AGENCY P.O. BOX 63, 8TH FLOOR, COTTHAM 10370
HOUSE HARROGATE HG1 1TS TELEPHONE HARROGATE 55711

DATA RESOURCES AGENCY P.O. BOX

PRIZES

Winners of our recent competition, who will receive their prizes tonight, were

1st S. WATSON, YORKS

Runners-up:
R. Griffith, Northants
S. Choppin, W. Sussex
L. Clayton, Essex
G. Hatch, Cheshire
B. Johns, Tyne & Wear
C. Davies, Edinburgh

QUIZ US

MAKE YOUR WINNING MOVE

Contracts for Analysts & Programmers

U.K. CONTRACTS
IBM PL/I/IMS TS0 — S. Coast
IBM OS/VS1 SYSTEMS PROG — C. London
IBM MVS SYSTEMS PROG — Hants
IBM RPGII FOR SYS 3.34 CONV — Sussex
IBM OS COBOL + IMS — Kent
IBM OS ASSEMBLER — C. London
IBM OS COBOL CICS — Surrey
IBM OS JCL + ROSCOE — Kent
IBM OS CICS PROG — Lon/Hants
IBM BAL DOS — Kent
VENTEK DATASHARE — Middx
HONEYWELL L62 + COBOL — Berks
DG NOVA + BASIC (FEB START) — Sussex
ICL 1900 DRIVER — Essex
ICL COBOL VME/B — C. London/Leeds
PDP CORAL /RSX11 — Kent
OVERSEAS CONTRACTS
HONEYWELL L66 + COBOL — Holland
BURROUGHS B80 + COBOL — Holland
IBM SYS 34 RPG II (FEB) — W. Germany
Call Neil, Colin or Denise for details.

Top Contract rates for IMS PROGRAMMERS

We have immediate and future posts for contract staff to assist in the development of a major project. Our KENT based client require COBOL programmers with either Batch or On-line IMS experience. So, whether you are immediately available or just considering contract work Call Neil Williams for details.

IBM OS + CICS?
Top salary + expenses S. Yorkshire

Immediate and future contracts for Cobol or Assembler programmers with CICS experience under OS. Please contact Neil Williams for details.

Knight
Phone anytime, or for an application form leave your name and address without an answerphone service.
Knight Computer Services Ltd.,
14 Old Park Lane, London NW1 1YL
Telephone 01-419 3411

01-491 4706
OR WHEN BUSY 01-419 3411

COMPUTER WEEKLY

the newspaper computer people rely on for

APPOINTMENTS

And there are five good reasons why recruitment advertisers rely on it, too.

92,000 PLUS CIRCULATION.
The largest in the field — and continually growing. It's rigorously controlled and updated to ensure maximum coverage of key computer personnel.

MORE REQUESTED COPIES.
Almost all readers either personally request or buy their copies — a claim no other computer journal can make.

HIGH QUALITY EDITORIAL.
A recent independent survey showed that Computer Weekly is considered the best journal for news — and the best medium for jobs — at all levels of the industry.

REGIONAL RECRUITMENT FEATURES.
They are editorially supported — and appear regularly.

HIGH RESPONSE RATE.
Even in today's tricky computer recruitment situation, a high response is regularly reported by advertisers.

FOR RESULTS, RECRUIT COMPUTER WEEKLY

London: 01-261 8028/8019/8174
Manchester: 061-872 4211
Birmingham: 021-356 4838

Dorset House, Stamford Street, London SE1 9LU.
Published by IPC Electrical Electronic Press Ltd

UNIVERSITY OF SOUTHAMPTON COMPUTING SERVICE
Applications are invited for the post of
PROJECT SUPPORT OFFICER

Within the University's ICL PASCAL compiler project, the successful applicant will be responsible for the maintenance of the compiler involving a substantial amount of liaison with the computer manufacturer, and will assist in the development of programs. No specific programming experience is necessary but familiarity with use of computer operating systems and utility software is essential. The post will be tenable for a period of 2 years. Salary in the range £18 - £2775. Applications giving date of birth, details of qualifications and experience and the names and addresses of two referees should be sent to Mrs P. Vaughan-Smith, Staff Department, The University, Southampton SO9 6NF, as soon as possible and from whom further particulars may be obtained. Please quote ref: 1109/A/CW.

Mr. T. Goodliffe
COMPUCORP
1 Blenheim Road
High Wycombe
Buckinghamshire HP12 3RS

Our Client is a UK Manufacturer of distributed intelligence and multiprocessor business systems. They are well established, financially stable and are enjoying a major share of the market. Further to this, the Company has a large, successful and loyal customer base which offers a continuing source of business. Their growth (40%) is exceptional and is continuing. This has necessitated a planned expansion of the sales force with the immediate need for Sales Executives in the **MANCHESTER**, **BIRMINGHAM** and **LEEDS** areas.

Sales Executives GUARANTEED MINIMUM £10,000+

As you will be selling to new as well as existing users, you should be able to demonstrate professional sales ability within the data processing industry and possess a desire for high earnings and career advancement.

Training for Success

Full initial and on-going sales plus product training will be provided to give you every opportunity to join the high number of Sales Executives who exceed quota, capitalising on the "COMMISSION ACCELERATOR" to achieve earnings in excess of £17,000 per annum.

There it is; FINANCIAL STABILITY — GROWTH — FIRST RATE PRODUCTS — RENOWN MANUFACTURER — TRAINING — HIGH EARNINGS.

There is nothing to lose — there may be a lot to gain — so make a note in that nice new 1980 Diary to phone.

SIMON LEVER ON: 021-236 3781 (24 hour answering service)
OR: 021-420 1574 (evenings and weekends)

If you prefer — write to me in Birmingham.
Interviews will be held in London or Birmingham.

London 01-935 0871 3 Mandeville Place, Wigmore Street, London W1M 5LB
Birmingham 021-236 3781 35-37 Great Charles Street, Queen's Way, Birmingham B3 3JY
Manchester 061-833 0427 Blackfriars House, The Parsonage, Manchester M3 2JA

Specialist Computer Recruitment Ltd

Phone
Simon Lever
NOW!
021-236 3781

Engineers

Datacommunications

£7,500

Thames Valley

(Relocation Package; review July 1980)

There can be little doubt as to the advantages of working with a Market Leader. Our Client is just that.

Specialising in high quality, comprehensive modern/multiplexor/network control systems, they have rapidly captured over 50% of the current private installed market in the UK. Their service and reputation in support is second to none. Turnover has risen to the current rate of £20 million per annum.

That's quite a track record.

Such growth has given rise to two key positions.

SYSTEMS ENGINEER

Essentially with a full understanding of data communications systems. You will work in a role which will comprise pre/post sales support and engineering responsibilities. Thus sales empathy will be as important as technical awareness.

PRODUCT APPLICATIONS ENGINEER

This hardware/software function has a bias towards the product — a comprehensive micro based network management system. Your background would probably include experience of small commercial business systems.

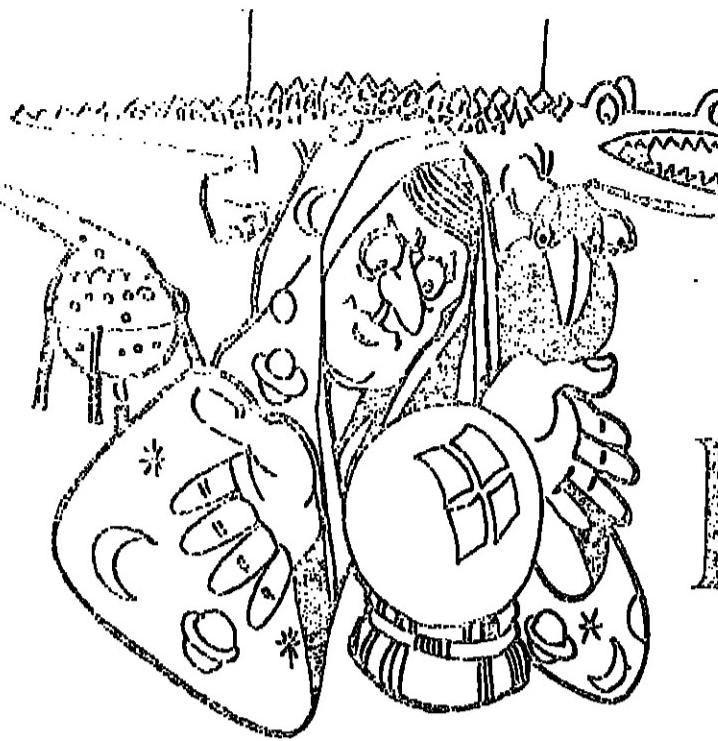
Both positions carry the use of a Company Car

Interested? Contact Dave Scarlett on 01-935 0671 or (evenings and weekends) 01-540 3549.



London 01-935 0871 3 Mandeville Place, Wigmore Street, London W1M 5LB
Birmingham 021-236 3781 35-37 Great Charles Street, Queen's Way, Birmingham B3 3JY
Manchester 061-833 0427 Blackfriars House, The Parsonage, Manchester M3 2JA





Look to your future with a KPSL contract

PROGRAMMERS
£200

CITY

We require 2 PL/I programmers and 1 RPGII programmer for conversion work. January start for short term contracts.

PROGRAMMERS
c£250

W. LONDON

At least 5 persons required for initial 3 month contract. Preferably with Honeywell L.62 Cobol experience but will consider any series 60 experience.

PROGRAMMERS
£220

CITY

Experienced DOS COBOL CICS programmers for banking applications. January 1st start for 5-6 month contract.

**PROGRAMMER &
ANALYST/PROGRAMMER**
£250

ESSEX

Good H/W 66 GCOS COBOL Programmer and Analyst Programmer with IDS/TDS exp. preferable. January start. Initial 6 month contracts.

CONTRACTS LONDON
AND SOUTH

ANALYST PROGRAMMER
£250

KENT

Good DOS Assembler experience required for maintenance role. Long contract. S/D January 1st, 1980.

ANALYST PROGRAMMER
£250

BUCKS

IBM OS COBOL Analyst Programmer reqd. for January start. Initial 3 month contract.

ANALYST
£300

C. LONDON

Experienced Analyst required urgently for 6 month contract with major international Company. Financial applications environment. Knowledge of DL/1 Database advantage.

01-734 0152 (24 hours)

Royalty House, 72 Dean Street, London, W.1

PROGRAMMERS
£250

SUSSEX / KEESEY

Programmers with experience of Real-time simulation work using Coral and also Assembler and Fortran. Long contracts. Immediate start.

PROGRAMMERS
£250

LONDON

A long contract awaits ICL System 10 programmers with Cobol 74 or Assembler experience. Start as soon as you can.

**ANALYST /
PROGRAMMERS**
£250

BERKS

Univac 90/30 Cobol 74 Analyst/Programmers to work on commercial applications. Immediate start, 3-6 month contracts.

**ANALYST /
PROGRAMMERS**
£250

KENT

Real-time knowledge on PDP RSX11M using Coral 66 for lengthy contract. Start date as soon as possible.

IBM Systems Engineers

Our international client is a premier European computer consulting company. It is one of the world's leading developers of management information and Data Processing systems, with offices from USA to the USSR.

The company's capabilities include twelve service Bureau computer centres in France and elsewhere based on several very large IBM mainframes e.g. 370/168, 3033 etc, in addition to ITEL AS5 + AS6 plus various other hardware from a variety of manufacturers.

They wish to recruit Systems Programmers for the large IBM mainframes in a Systems Engineering capability. Candidates will be required to advise on large MVS operating systems, supporting users on the best use of their machines, writing additional utilities and some travelling to the various computer centres in France and overseas.

We would like to hear from candidates with several years' experience of IBM Systems Programming including at least two years' experience

Successful candidates do not need to speak French but will be given assistance to learn the language in due course. Candidates can expect a high salary and excellent working conditions that one would associate with responsible positions of this kind.

CW2/1

**Knight Programming
Support Limited**

London • Manchester • Birmingham • France • Holland

INTERNATIONAL COMPUTER CONSULTANTS

TAKING CARE OF YOU AND YOUR FUTURE

© Knight Programming Support Limited 1980

Central Computing Consultants

LONDON: 8A Lower Grosvenor Place, London SW1W 0EN, England. Telephone: 01-834 7105. Telex: 918582

DUBLIN: Canberra House, 24 Lower Leeson Street, Dublin 2. Telephone: 789577 (5 lines)

Software Engineers
Computer Control
Programmers
Required

Software Engineers

An expanding division of an International Professional Company specialising in Process Control for Power Station Computer systems need additional Programmers and Engineers for Software development and maintenance of these computer systems.

Based in Switzerland, successful candidates will be required to take full responsibility for all stages of development from design through to implementation. Broadly speaking, we are looking for candidates to concentrate on establishing new standard software and will note that likely have worked with or have an interest in most of the following: modern real-time computers, database technology, man machine communication and multi CPUs systems.

The standard software forms the basis for projects being developed for a world-wide user base and so some candidates may be called upon to travel to South America, Middle East and Far East etc. for short term commissioning purposes.

General backgrounds should include a degree experience in software development, Process Control, Assembler and high-level languages, ideally CORAL and FORTRAN. Familiarity with PDP RSX-11 would be advantageous and a foreign language would be desirable but not essential.

Remuneration will be high for the successful candidates and totally consistent with local standards. Interviews will be held in the UK during the early Spring.

In addition candidates will have an opportunity to visit Switzerland prior to final decisions.

For further information of the above opportunities please telephone John De La Mare on 01-834 7105, or write to Box 1002, Lower Grosvenor Place, SW1.

CV 2/2

Central Computing Consultants

LONDON: 8A Lower Grosvenor Place, London SW1W 0EN, England. Telephone: 01-834 7105. Telex: 918582

DUBLIN: Canberra House, 24 Lower Leeson Street, Dublin 2. Telephone: 789577 (5 lines)



SCIENTIFIC PROGRAMMER

Cheshire

We are looking for an experienced Programmer to join the Scientific Systems Department, located at the Company's Pharmaceuticals Division at Macclesfield, Cheshire.

The department is small and informal, but covers a wide range of expertise in minis, micros, electronics, APL, communications and the IBM mainframe. As a consequence, each member carries a high degree of responsibility in his own field.

Applicants should preferably be educated to degree level and have 2-3 years programming experience.

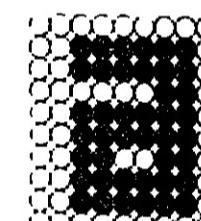
The successful applicant will be required to specify and write program suites for laboratory automation projects using an IBM Series/1 under EDX. Ciba-Geigy Pharmaceuticals Division is engaged in the manufacture and marketing of a wide range of pharmaceutical specialities derived from original research conducted on an international basis. To apply please write giving brief details of age, qualifications and experience to:

Mr Peter G. Allies, Scientific Systems,
Ciba-Geigy Pharmaceuticals Division,
Macclesfield, Cheshire SK10 2LY.

CIBA—GEIGY

salesperson!

We require super salespersons to join our growing team selling Texas Instruments, Hazeltine and NEC Peripherals. Excellent Bonus Scheme. Interested? Phone now on 01-580 8841



Abacus warehouse
62, New Cavendish Street,
London W1M 7LD

SYSTEMS AND DATA PROCESSING MANAGER

BREWING INDUSTRY

Circa £9,000 (negotiable) + attractive benefits

A leading Midlands based Brewery requires to appoint a Manager who will be responsible for the computerised Systems and Data Processing function.

Essential Technical Experience: operating IBM System 3/12, programming in RPL2, with the knowledge and ability to develop to System 38, using visual display and on line or real time systems.

Essential Management Experience: motivation and management of a team of systems analysts, programmers and operators.

Essential Personal Qualities: those necessary for success in a position involving liaison and co-operation in an expanding, but closely knit, organisation.

Applications are invited from qualified Data Processing Managers, aged 30/40 years, who have the experience to manage an existing department and the ability and flair to keep the company abreast of developments. Write or telephone for an application form, in confidence, quoting reference number 230, to the consultants advising on the appointment.

Brian Woodhead & Co.Ltd.

NETTLETON HOUSE
4/5 CALTHORPE ROAD
BIRMINGHAM B16 1RH
Telephone: 021-455 9292



JBA

Sales Executive

London

A well established organisation is about to market a new micro-based commercial system and requires a Sales Executive to take initial responsibility for this product.

Candidates must have a proven record with either a small business systems manufacturer or a software services company and have the maturity and initiative to work on their own.

An exciting opportunity in a brand new field. Contact: Jim Baker

Automation and Control Systems Analyst/Programmers, Team Leaders, Project Leaders

London Based

to £11,000

We have been asked by a major systems house to identify technical personnel at various levels to work on new projects in the field of Industrial Control and Automation.

We are looking for professional systems designers with skills in one or more of the following areas:-

- * multi-mini/microprocessor system architecture
- * advanced real-time programming methods
- * experience gained in a closely related application area with a manufacturer or user.

Successful candidates are likely to be of graduate calibre, with a high level of proven capability in the design, implementation or management of technical applications.

Above average salaries and benefits. Contact: Margaret Stevens

IMS Project Manager

Birmingham

Earnings c. £10,000

An international engineering organisation is seeking a PROJECT MANAGER to formulate the standards and design methodology relating to the use of data base technology (IMS) at their new data centre. Applicants should be experienced computer professionals and have a thorough knowledge of IMS consolidated by practical experience.

A sound opportunity to influence the use of data base technology throughout this highly respected organisation. Contact: Bev Stevens

On-Line Designers/Technicians

N. Middx.

£8,000 - £12,000

Designers with experience of on-line systems in large machine environments, possibly including graphics output, are required to join one of the most technically advanced projects currently being developed in the U.K. Opportunities for progression to project control positions will be made available for technically able and ambitious technicians of some seniority, whilst for more junior candidates team leader/senior designer posts are on offer once capability is proven.

The company can offer overseas work for those who wish it at a later stage, whilst normal conditions include BUPA, pension and disability schemes and car leasing for senior personnel. Contact: Andy Wright

General Insurance Analyst

Hampshire

up to £8,600 + benefits

Our client, a major company in the insurance business, is to commence a new project early in 1980. A Senior Systems Analyst with in-depth general insurance experience is required to control the project from feasibility through to implementation. A good background is necessary in database techniques and on-line applications.

Benefits include a heavy mortgage subsidy, non-contributory pension, free permanent health insurance and many others, including very generous relocation expenses.

Contact: Mike Creamer

Viewdata Systems (Programmers)

London

Salaries negotiable

Langton Information Systems is an expanding Software House, specialising in text handling, Viewdata and publications systems. They are currently looking for two good COBOL programmers to work on the development of bespoke and packaged software in these interesting areas.

Candidates should have a minimum of 18 months experience. IBM OS or PDP-11 is preferred but any COBOL is acceptable. Previous experience in Viewdata or publications systems is not necessary.

In addition to very good starting salaries, the Company offers two bonus schemes and attractive fringe benefits.

Contact: Bernard Kiernan

JAMES BAKER ASSOCIATES

International Personnel Consultants,
32 Savile Row, London W1.
Tel: 01-439 9311

TERRITORY SALES MANAGERS

c £16K + COMPANY CAR

SYSTEMS CONSULTANTS

(PRE-SALES SUPPORT)
£8.9K + CAR SCHEME

THE COMPANY—GEEST Minicomputer Systems Limited, is part of the multi-million pound Geest organisation, providing unrivalled backing and stability for you through the '80's.

THE PRODUCT—The Texas Instruments DS 990 SERIES. The best real-time mini computer, proven over a large installed customer base.

PROFITS—Substantial profit growth has established GEEST in 1979 as one of the leading suppliers of Turnkey Commercial Systems based on Texas Instruments Mini Computers WORLDWIDE.

INSIGHT MARKETING & PERSONNEL CONSULTANTS LTD.

IMPC LTD.
72/75 MARYLEBONE HIGH STREET
LONDON W1M 4AJ. TEL. 01-488 8844

IMPC LTD. (NORTH MIDLANDS)
AUSTIN HOUSE
CHARLOTTE STREET, MANCHESTER 1. TEL. 061-236 7026



Programming in Music Publishing

If you have approximately two years' experience of RPG II programming, preferably on line applications such as order entry, join Polygram Publishing Division, as part of their international M.I.S. team.

Based in Ilford, the team is responsible for designing, developing and supporting computer systems for the Divisions' various world wide publishing houses.

Initially you will be involved in the development of order entry and accounting packages, this will mean working abroad for short periods during the early part of 1980. An IBM system 34 is being installed at Ilford during 1980, part of a world wide hardware installation programme. IBM mainframe equipment is also currently in use and there will be every opportunity to work on projects using this equipment.

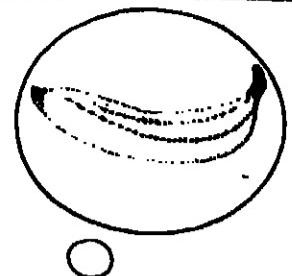
Experience of Data processing within the publishing industry would be an added advantage.

There is a comprehensive employment package (including luncheon vouchers, annual bonus and staff discounts).

Salary will be negotiable according to experience. If you are interested please send your c.v., or write or telephone for an application form to:

Ann Stradwick,
Polygram Publishing Division, 60-70 Roden Street,
Ilford, Telephone: 01-478 6922.

PolyGram



What's a nice company like
Geest
doing, recruiting in London
and Birmingham,
quite simply the answer is
Success.

GEEST IS GROWING FAST AND YOUR CAREER DEVELOPMENT IS ASSURED.

Please telephone for interview (in Birmingham or London) our London or Manchester Offices quoting Ref. JG 19.

JBA

Senior Software Lecturer & Computer Operations Supervisor

The Technical Marketing Department of this large computer manufacturer runs an Education Centre for customer training, incorporating several in-house mini-computers which provide for training aid, demonstrations and benchmarking.

Senior Software Lecturer

c. £8,000

Candidates, male or female, will preferably be educated to degree standard, have several years experience in the industry involving some exposure to the intricacies of operating system software. In addition to giving courses, the lecturer will be expected to prepare new course material and keep existing courses up to date. Occasional travel may be necessary.

Computer Operations Supervisor c. £7,500

The Supervisor will be responsible for the satisfactory operation of the computers, ensuring that the right hardware and software is available and kept up to date and for allocating computer time. The post will be of interest to programmers or engineers, male or female, who wish to become familiar with the operations management aspects of a computer installation.

These posts are situated in a pleasant part of Hertfordshire close to London's green belt.

Contact: Mike Creamer,
James Baker Associates,
International Personnel Consultants,
32 Savile Row, London W1.
Tel: 01-439 9311.

SALES

QUOTA EARNINGS — £16,000

A market leader in the manufacture and sale of small to medium range business computers with a positive approach to marketing is seeking a high calibre Sales Professional to develop and increase its customer base throughout Southern Ireland. The ideal candidate will have a demonstrable track record in the sale of disc based business systems and will possess the drive and ambition necessary to succeed in a competitive and fast growing environment. A knowledge of the Irish Market would be very useful. Commercial qualities and organisational skills combined with the ability to motivate people will lead to managerial status for the right person in the short term. The company offers an attractive remuneration package which includes a basic salary of £7,000, a minimum earnings guarantee and a 21p per mile car allowance. Realistic targets will give an on quota income of around £16,000 and relocation expenses are payable in appropriate circumstances. Please write or telephone Gerald Delamere at the Dublin office (0001 78 95 77).

RPGII PROGRAMMERS IN CONSULTANCY

£5,000-£8,000

DUBLIN

Our client is a major Irish accounting and management consultancy practice, employing over 500 people and providing a comprehensive range of professional services to Irish and international companies.

You will be required to work on various outside clients' projects as well as the additional development requirements of our own in-house facility.

If you have at least 3-6 months' experience of RPGII our client will be very interested, but if you have five years plus they still want you, then pay more!

Successful candidates will be offered whatever their experience warrants and a future working to high professional standards in a company committed to individual programmes for training and development.

Please write or telephone Gerald Delamere at the Dublin office (0001 78 95 77).
CWD/2

SYSTEMS ANALYST

IRISH MIDLANDS

Our client, a manufacturing company with an established ultra-modern plant accessible to Dublin, requires an experienced Systems Analyst to join a young team.

The person appointed will be assistant to the DPM. The opportunity exists for someone to look into other development areas, e.g. the use of micros and process control systems. In addition to the current ones other manufacturing systems have to be developed.

The successful candidate will have at least six years in DP with a minimum of three in systems design/analysis. Manufacturing experience is very desirable and a programming background would be helpful.

The company offers this outstanding opportunity to secure very interesting work. In addition to a competitive salary and excellent working conditions in a new installation there is a life assurance and pension scheme. Assistance will be given with relocation costs where applicable.

Please write or telephone Gerald Delamere at the Dublin office (0001 78 95 77).
CWD/3

ANALYSTS and PROGRAMMERS

£5,000-£11,000

SOUTHERN IRELAND

In addition to the above positions we have many clients all over Ireland who are seeking high calibre computer men and women. Our clients, both Manufacturers and Users, want good commercial systems experience and applicants with manufacturing experience will be particularly welcome as new foreign companies are coming to Ireland and setting up new facilities every month. Prospects are good, really good, with start-up positions available for people who don't want to be doing the same thing year after year. If you genuinely want to work in Dublin or Ireland contact GERALD DELAMERE at 0001 78 95 77 or write to him at 24 Lower Leeson Street, Dublin 2.

CWD/4



Central Computing Consultants

LONDON: 8A Lower Grosvenor Place, London SW1W 0EN, England. Telephone: 01-834 7105 Telex: 918582

DUBLIN: Canberra House, 24 Lower Leeson Street, Dublin 2. Telephone: 789877 (5 lines)

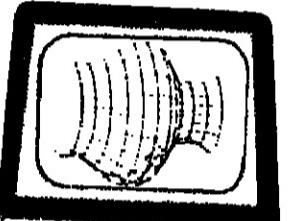


"Computervision Europe, with operations in 10 European countries, is part of the Computervision Corporation, a major U.S. company, which is the world leader in the design and manufacture of Computer Graphics Turn Key Systems - one of the fastest growing high technology industries.

Computervision's Computer-Aided Design/Computer Aided Manufacturing (CAD/CAM) systems, and comprehensive support services, are helping customers to increase productivity worldwide.

We are a young, dynamic, highly profitable organisation currently embarked upon a major expansion programme to satisfy market demand."

Computervision Ltd.



Productivity... by Design

Field Service Engineers and Application Engineers

up to £8500 + 2-litre car

* SOUTH ENGLAND * MIDLANDS * SCOTLAND

Field Service Engineers

We currently have several opportunities throughout SOUTHERN ENGLAND, THE MIDLANDS and SCOTLAND for Field Service Engineers, with a good knowledge of electronics and 2/3 years' field experience in the computer industry.

The successful candidates will be involved with the installation, commissioning and on-going support activities to their respective customer base.

Experience of mini-computer systems and associated peripherals is required, although previous experience of CAD systems is not essential as full product training will be provided.

Salaries will be up to £8,500 pa plus profit sharing bonus, and the associated benefits package will include free BUPA life assurance cover. Assistance will be given with relocation expenses, where appropriate.

Application Engineers

We currently have opportunities in THE MIDLANDS and SOUTHERN ENGLAND for Application Engineers with experience of mechanical design/numerical control disciplines.

The successful candidates will provide some training and on-going application support services to both new and existing customers for our CAD/CAM systems.

A qualification of degree level is required together with several years experience of their respective discipline. A background in the use of engineering software or CAD/CAM will be an advantage.

We shall be commencing interviews for these positions from 16th January 1980 so if you are interested please contact Mike Fuller, Customer Support Manager, or Bob Powell, Administration Manager, Computervision Limited, Penn Street Village, Amersham, Bucks. Tel: High Wycombe (0494) 714771.

B
A
R
S
O
N

SYSTEMS ANALYSTS CITY & CENTRAL LONDON	£9500
Project Control at IBM CICS installations. (Bill).	to £6500
RPG11 PROG/ANALYST LONDON	to £7500
Development work on IBM System 34. (Peter).	to £8000
ICL COBOL PROGRAMMERS WEST LONDON	to £7000
Large On-Line installation. (David).	to £7500
SYSTEMS ANALYSTS MIDDLESEX	c. £8500
Develop new systems at well-known company. (Bill).	to £9000
IBM OS OPERATORS WEST OF LONDON	to £8500
Operators to Lead Ops £5000-£7000 5-day week. 3 shift. (Peter).	Design and program commercial systems. (David).
PROGRAMMERS LONDON	107 Jermyn Street, London, SW1
PL/1 PROGRAMMERS LONDON	Telephone: 01-839 6087
All levels of PL/1 Programmers needed for this CICS installation. (Bill).	Peter Barson, Bill Taylor, David Ward
SENIOR ANALYSTS SURREY & N. LONDON	BARSON, TAYLOR & WARD, Computer Personnel Consultants
Project Leaders and Analysts required. Financial or Manufacturing experience (Peter).	107 Jermyn Street, London, SW1
ANALYST/PROGRAMMERS WEST LONDON	TAYLOR & WARD

TELEPHONE: 01-839 6087
Peter Barson, Bill Taylor, David Ward
BARSON, TAYLOR & WARD, Computer Personnel Consultants
107 Jermyn Street, London, SW1

TAYLOR & WARD

Cullinane
(U.K.) Ltd.

Customer Support

Central London

£7-10k + Car

IBM or Database

The Cullinane Corporation of America is known throughout the industry as the market leader in Management Information Systems based on Database Software.

As part of their U.K. and European expansion programme they are seeking to recruit a number of people to support and develop their existing customer base.

Ideal candidates will have a good all round knowledge of IBM systems, experience of database management techniques and should have worked in a support environment. However the company appreciates that the ideal is not always attainable and is interested in meeting those who possess any of the attributes outlined above and who have a desire to develop the others.

To those with genuine technical and personal skills, and an interest in database techniques this is a real opportunity to join what is probably the most respected company in the software products industry.

For full details telephone Kevin McCourt or write enclosing a Curriculum Vitae quoting reference KTM.3002.



Lloyd Chapman
Associates

123, New Bond Street, London W1Y 0HR 01-408 1670

Cobol programmers

International Banking
London based with overseas travel

We are seeking programmers with at least a year's COBOL experience to support a major International Banking System, which will initially be installed in two European locations on Hewlett-Packard equipment. Experience of working on mini-computers is advantageous but not essential.

The positions are based in London but involve working for short periods in the bank's European Offices. There are also likely to be assignments to the Far East.

An excellent benefits package includes low interest mortgage facilities, non-contributory pension, medical and life insurance plans and an annual bonus.

Please write in the first instance to Mr William E Swanson giving a brief resume of your experience and career to date.
Morgan Guaranty Trust Co of New York, P.O. Box 161,
33 Lombard Street, London EC3P 3BH

Morgan Guaranty
Trust Company of New York

DENTAL ESTIMATES BOARD EASTBOURNE

COMPUTER OPERATIONS MANAGER

The Dental Estimates Board operate an ICL 1904S tape-disc machine and require an Operations Manager, responsible to the Computer Manager.

Applicants should have experience of 1900 operations management, including a good working knowledge of GEORGE operating systems.

Starting salary will be in the range £7,032-£8,651 per annum.

Application form, to be returned by 30th January, 1980, and further details may be obtained from the Clerk to the Board, Dental Estimates Board, Eastbourne, East Sussex, BN20 8AD (Telephone Eastbourne (0323) 26652, Extension 33).

Gloucester

Assistant Operations Manager

Salary up to £6936 p.a.

The County Council has installed a large Honeywell level 60 system which will service six level 6 mini computers online in the District Council's plus a network of terminals. Applicants should have relevant experience for working in this demanding environment.

For details ring Judy Hobbs - Gloucester 21444 Ext 520 or write Computer Services Manager, Gloucestershire County Council, Quayside Wing, Shire Hall, Gloucester GL1 2TJ.

Manager of Information Systems Centronics are preparing for the eighties

We are the leading independent micro printer manufacturer and have grown rapidly in Europe over the last four years. Our plans call for continued growth and success in the years ahead.

To meet our increased information needs we require a Data Processing professional who can plan and install an entirely new information system here and on the Continent using the latest IBM hardware and software.

The individual we seek will provide effective leadership in the management of multi-national computer sites and in the long-range development of computer systems. In addition he must possess a strong technical background in COBOL, RPG II and Teleprocessing. The position requires strong consultative, technical and administrative skills and the ability to interface with all levels of management to assess and respond to user requirements. Demonstrated leadership experience in computing, including budgeting and administrative responsibility is essential. Applicants should preferably have a degree. The position reports to the European Director of Finance and is based in London, although foreign travel will be required. Salary will be in the region of £11,000 p.a.

Please reply to the European Director of Finance, Centronics Data Computer, Petersham House, Harrington Road, London SW7

CENTRONICS® PRINTERS
Simply Better

Software Administration Manager

North London

circa £10,000

Our client, a market leader in the supply of advanced hardware and software systems to the colour printing and graphic arts industries, wishes to recruit an experienced person into the new position of Software Administration Manager.

The person appointed will have a proven record as a manager, or project leader, in the computer industry which will have been reached via programming at a detailed implementation level. He/She will have a talent for organization and administration.

The position requires new procedures and standards to be implemented which will result in improved efficiency in the collection, storage, documentation and update of software produced by a number of engineering project teams. Prime requirements are self motivation and the ability to achieve results with the co-operation of a number of managers and chief engineers.

The salary offered is meant to reflect the importance of the position within the Company. In addition the Company offers a bonus scheme, 5% contributory pension, flexitime, season ticket loan scheme and relocation expenses where appropriate.

If you believe you have a contribution to make in this area and would like to be considered please send your cv to Terry Harvey or contact him for an application form.

HRC Harvey Recruitment
Executive and Computing Personnel Consultants
500 Chesham House, 150 Regent Street, London W1P 5FA. Tel: 01-584 535

WELCOME TO 1980

OPERATORS / SENIOR OPERATORS
£6,000 to £7,000 inc. N. MIDDX.
If the above salary appeals to you and you have 18 months+ IBM OS/VSI or MVS experience, then apply now. This local government installation works on a three-shift system. Usual benefits, plus relocation expenses for the right person.
CW2/1

JUNIOR PROGRAMMERS
£4,500 to £5,500 S.E. ENGLAND
You have only 1 year's commercial experience? Then you are a great demand. We have a large selection of first-rate companies who need people like you. Some offer mortgage assistance to the right candidates after a short period with them.
CW2/2

IBM OPERATOR
c. £6,000 RICHMOND
If you have 2-3 years' 370 DOS experience with CICS, don't hesitate to apply for this excellent position. The above international company has a 4331 installation and a T.P. network. You work for 3 extended days per week - usual company benefits.
CW2/4

RPG II VACANCIES
LONDON & HOME COUNTIES
£5,000-£5,500
If European travel, a car and mortgage assistance interest you then several of our current list of 16 unique vacancies for RPG II programmers and analyst programmers should appeal to you. Locations are the City, SE1, Brentford, Chatham, Ashford, Kingston, Pinjar and Maidstone for people with 1½ years' or more experience. Career growth is assured and most offer very attractive perks.
CW2/5

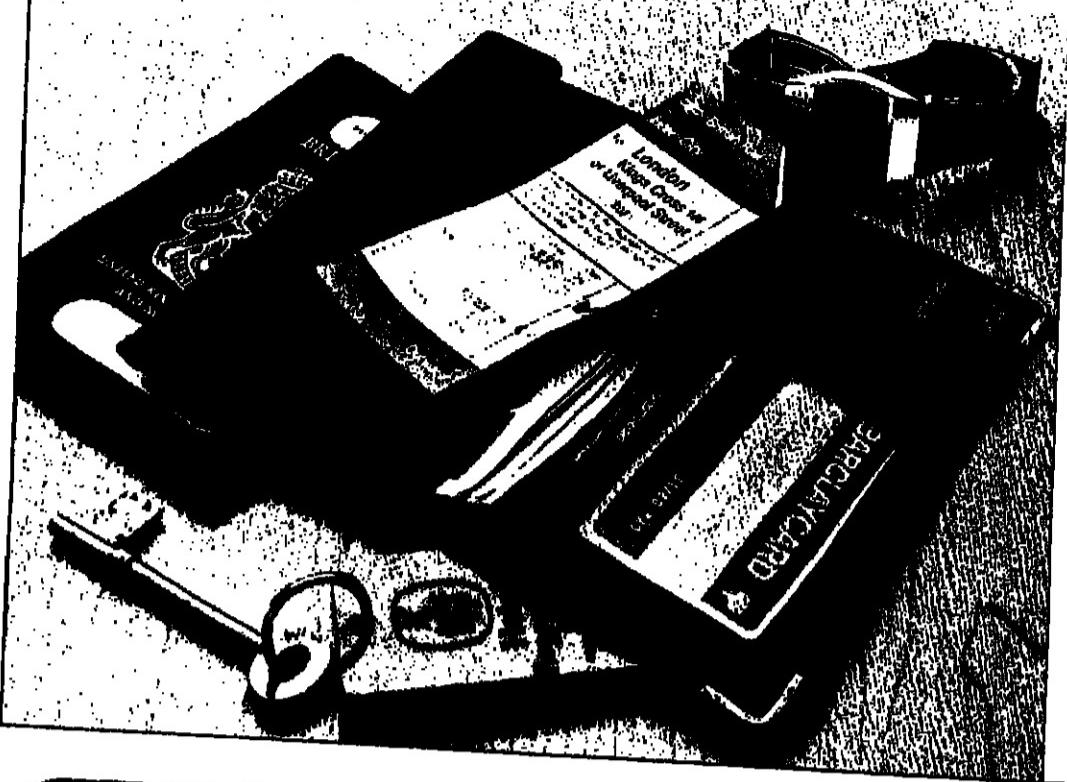
BASIC PROGRAMMERS
S.E. ENGLAND £8,000-£9,000
But you never know how popular you will be! We have over 40 registered vacancies for BASIC and BASIC + programmers. Opportunities exist in the City, SE1, Brentford, Chatham, Ashford, Kingston, Pinjar and Maidstone for people with 1½ years' or more experience. Career growth is assured and most offer very attractive perks.
CW2/6

UCA Recruitment Consultants
UNIVERSAL COMPUTER ASSOCIATES LIMITED
01995 3883 (01958 6138 evenings)
Data Express Home, 3 Prospect Place, Heathfield, Kent TN24 9AA

ARE YOU BORED TO DEATH WITH YOUR JOB?
Then . . . call Mark Plant NOW

WORCESTER (0905) 427077
or
(0203) 598421 after 7 p.m.
or write to
Mc Dowell, Knapp
THE MOUNT
1 ST JOHN'S
WORCESTER
WR2 5AE

Senior Computer Operations Staff



We've got opportunities at home and abroad.

We need Senior Computer Operations staff for consultancy and advisory positions in the UK and overseas.

We need 2900 experienced people for technical and procedural projects, preferably with 1000 background.

We need people to build and maintain VME / 8 operating systems on Facilities Management contracts in the UK and overseas.

We need 2903/4 people to meet the needs of our expanding market. (Knowledge of George 2 and COBOL would be an advantage).

We need people to sustain our growth and reputation.

We need the best.

If you think we need you, ring Cathy Elgar on Reading (0734) 581258 ext. 98. We'll tell you about the success we've already had, providing a whole range of operations services in more than twenty countries, and we'll pay well. Ring us now, or write to Richard Hornblow, Operations Services, DataSkill Limited, Reading Bridge House, Reading, Berkshire RG1 8PN, quoting reference CW1585.

DataSkill Ltd
The Computer Professionals

SYSTEMS ANALYST/PROGRAMMER Construction Industry West Midlands

Expansion of the computer department within this successful Construction Group, with its Head Office situated in West Midlands, has given rise to the requirement for a Systems Analyst/Programmer.

A totally integrated accounting system has been developed and is currently running on an IBM System 34. Computerised material management and control systems is the next phase in the development plan, and it is envisaged that will be of such importance to be able to take complete control of individual projects.

At least five years experience in systems analysis together with a detailed knowledge of BPP is a must. It is a requirement although extensive training will be given to those without this experience.

Salary commensurate with the responsibilities offered. Benefits include a contributory pension scheme and free BUPA. Consideration will be given to relocation expenses if applicable.

Apply in the first instance, giving brief details of career in writing to:

P. Robbins, Esq., Personnel Manager
Espley Tyas Group Limited
Park Hall, Salford Priors
Evesham, Worcestershire WR11 6SQ

ET **ESPLEY-TYAS**

datascene international FREELANCE CONTRACTS

Various assignments available throughout Central and Anglia for Programmers and Analysts incorporating the following skills.

IBM: 370, PLI, AS4, COBOL, OS/VSI
370, PLI, AS4, CICS, DOS/VIS
370, PLI, CICS, OS/JCL
370, COBOL, OS/VS, IMS
SY 34, RPGII, MAAPCS
3032, IMS

ICL: 1900, COBOL, GII, IDMS
HONEYWELL: LEVEL 64, COBOL, G COS
DEC: PDPII, CORAL 66, RSXII
PDPII, FORTRAN, RSXII

OVERSEAS:

IBM consultant to work in Brussels on 370/148, using COBOL running under DOS. The person will be required to perform a detailed documentation of a major insurance system. Assignment length will be 6 months + and the ability to speak French is essential. A package of between £550 and £600/week will be paid to the right person.

Datascene International Ltd 01-439 1856
ScopelHouse 169-173 Regent Street London W1R 7BB 24-hour answerphone

THE U.S. ARMY IN BERLIN

require a

Supervisory Systems Analyst

Applications are invited from persons with recent experience of UNIVAC computer systems. Supervisory experience is required.

Salary is in the range DM130,000 DM37,000 p.a. depending on age and experience.

Interested applicants should write enclosing a curriculum vitae to:

Commander, Headquarters, Burtonwood Army Depot, Attn: Mr. R. Prior, P.O. Box 180, Warrington, Cheshire.

U.S. ARMY

SOFTWARE ENGINEER MIDDLE EAST to £13,000 Tax Free

Norconsult, one of the world's leading telecommunication consultants require a Computer Software Engineer to join their team currently based in Riyadh. The company provides plans and technical/budgetary control for the 470,000 line Telephone Extension Project on behalf of the Saudi PTT. Based on a H.P.3000 system the computer department provides services for all aspects of the contract and is committed to the continued support and development of these services.

The successful candidate will have a degree, a knowledge of Fortran and mini-computers. Familiarity with data-base systems and computer graphics would be advantageous.

A one year renewable contract will be offered comprising an attractive tax-free salary, free bachelor accommodation, company car and home leave paid every 3½ months.

Please send a full resume to IAN HETHERINGTON
NORCONSULT SERVICES LTD
Contact House
179 Fulham Palace Road
London W6. Tel: 01-385 7989

SOUTH WEST UNIVERSITIES REGIONAL COMPUTER CENTRE University of Bath

ADVANCED NETWORKING

Three posts have been created to develop further the South West Universities Computer Network involving the design of international standard protocols for new mainframes, gateways, switches, PSS and campus network gateways. In particular this project is due to commence in close collaboration with ICL to develop modern networking protocols on the 2900. Opportunities will exist to work on mainframe or front-end concentrators in a high or low level language according to availability.

The appointment will be for three years initially, in the salary range £4786-£8273 and £7828-£9891. Previous networking experience would be desirable.

Application forms and further particulars may be obtained from the Personnel Officer, University of Bath, BATH BA2 7AY quoting ref. 80/3. Closing date will be 28 January 1980.

UNIVERSITY BATH, BA2 7AY
Department of Computer Science
Applications are invited for a limited number of posts in the following areas:
1. ASSISTANT LECTURER OR COLLEGE LECTURER

£350 p.w.

CONTRACT SYSTEM PROGRAMMES

urgently need

IBM 370 DOS

SHADOW inst

in East London

No Agents pls.

Contact

Mrs. Yen

01-888 4112

AMBITION COMPUTER OPERATOR

PUTNEY AREA

1 year's experience
power/VIS to take on
daytime shift of an
orientated computer
including T/O links
4300

Starting salary £5400

Call 8742262 and

Tim Ditzer.

See the world with Informatics

Above average salaries to \$30,000.00 plus bonus at completion of assignment.

To arrange a confidential interview at our London office, send resume immediately or telephone Miss Angela Nanni at our office. (Reverse charges accepted).

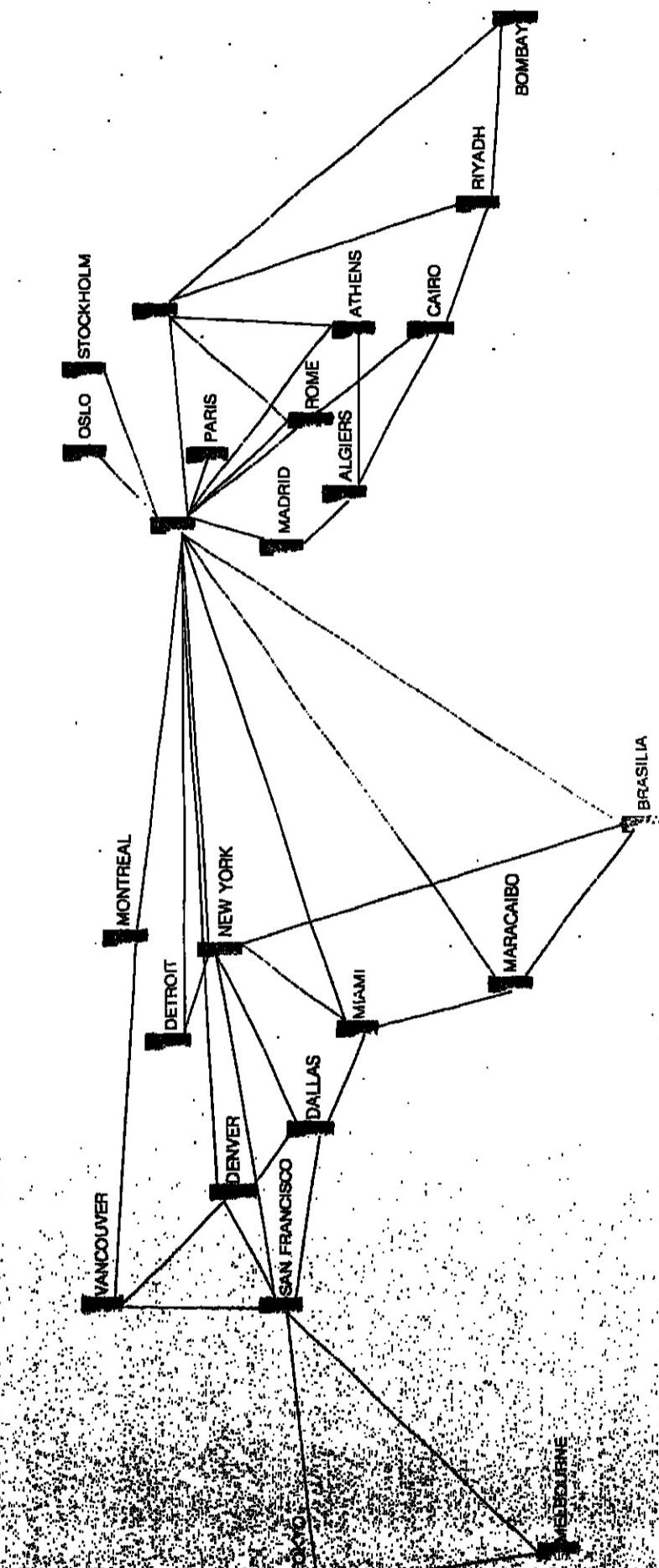
Africa House
64-78 Kingsway
London WC2B 6AL
01-405 8546

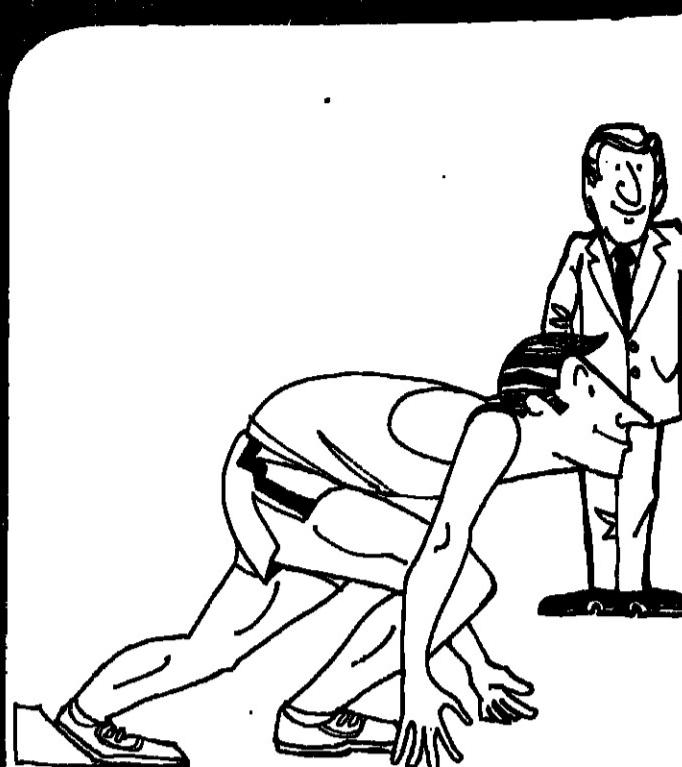
informatics inc.

Expense paid interviews in London
during week of January 21, 1980

Relocation expenses will be paid as necessary.
Write or telephone for an application form.
R.H. Gould,
Personnel Services Manager,
Wiggins Teape Ltd,
Gateway House,
Basing View, Basingstoke,
Hampshire RG20 2EB Ext 3100.

Informatics offers
Openings at all levels.
□ An opportunity to move up into
the management of this worldwide
organization.
□ Extensive training on the IBM/370
concentrating on data based and
on-line systems.
□ Paid holidays.





Start the year right with contracts in the North

CONTRACTS NORTH & MIDLANDS

PROGRAMMERS

IBM 370 OS COBOL. Good CICS and DLI essential. Commercial applications. N.W. location, 6-12 month contract.

CE260

IBM 370 PLI PROGRAMMERS

Urgently required. Knowledge of Taskmaster and/or Adabas desirable. West Country location, 6 month contract.

CE250

ANALYST PROGRAMMERS

IBM IMS DB/DC experience. Order Entry System. Midlands location, 6 month contract. Immediate start.

CE260

PROGRAMMERS

IBM 370 OS IMS COBOL. "Copics" essential. Stock control. Midlands location. Immediate start.

CE260

IBM 370 COBOL PROGRAMMERS

Some development involved. Midlands location, 12 month contract. Immediate start.

CE250

ANALYST PROGRAMMERS

ICL 2900 VMEB COBOL IDMS essential. Various applications, 4 month contract. Immediate start.

CE260

IBM PLI/COBOL PROGRAMMERS

DLI experience advantageous. Maintenance. Midlands location. Immediate start.

CE250

ANALYST PROGRAMMERS

UNIVAC 9030 RPG II. Commercial applications, 6 month contract. Yorkshire location. Immediate start.

CE250

For further information on these and other contracts telephone:

021-843 8867
Kenington House, Suffolk Street
Queensway, Birmingham B1

061-833 9341
Adamson House, Shambles Square
Manchester M3

Knight Programming Support Limited

INTERNATIONAL
COMPUTER
CONSULTANTS

TAKING CARE OF
AND YOUR CARE
OF

London • Manchester • Birmingham • France • Holland

Operating System and Software Development

- Technical Challenge • Stimulating Environment
- Wide Range of Projects • Successful Company
- State of the Art • Career Development
- Financial Reward • International Opportunities

We could go on and list many more of the prime attributes of your next job but we feel that if you are already a Systems Programmer you will probably know that ICL can more than meet your requirements.

At Bracknell we are involved in the development of a wide range of projects that will probably surprise you in their diversity and novelty. We need to recruit more people to help us to continue with our work and will be holding two open evenings, as detailed below.

The experience we are looking for will certainly be well rewarded (the salaries for these vacancies can go as high as £12,000).

If you are already in system software or have good application experience, you should certainly give us the opportunity of meeting you.

If you are an engineer with a bias towards micro-programming techniques we would also like to talk to you. We look forward to seeing you!

Informal Interviews

LONDON
Tues. 15th January
Royal Garden Hotel,
High Street,
Kensington, London W8
Anytime between 5.00pm-9.00pm

BRACKNELL
Wed. 16th January
ICL,
Lovelace Road,
Bracknell, Berks.
Anytime between 5.00pm-9.00pm

If you can't make either of these dates, then please ring me, Rob Wilson, on Bracknell (0344) 24842, Ext. 2750 to arrange an alternative time. Or if you prefer, simply post the FREEPOST coupon.

FREEPOST - no postage necessary. Just write to: Rob Wilson,
ICL, FREEPOST (Ref: CW 1573) Lovelace Road, Bracknell,
Berks RG12 1BR.
I would like to know more about Operating System and
Software Development.

Name _____
Address _____

Tel Day _____
Tel Evening _____

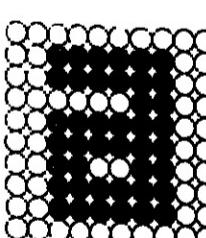
International Computers

think computers - think ICL



salesperson!

We require super salespersons to join our growing team selling Texas Instruments, Hazeltine and NEC Peripherals. Excellent Bonus Scheme. Interested? Phone now on 01-580 8841



Abacus warehouse
62, New Cavendish Street,
London W1M 7LD

Programmer (A.P.5 — £5,220-£5,547 — Comparability Award Pending)

The authority have an ICL 1901T (48k) with 2 x EDS 60 and 4 x 10 K.C./S. Magnetic Tapes; a V.D.U. is also in use.

Applicants should have had at least three years' COBOL experience. A knowledge of PLAN and DRIVER would be an added advantage.

The successful candidate will be required to assist in program maintenance, conversion and development.

Benefits include flexible working hours, payment of removal expenses, separation allowance and disturbance grant in appropriate cases, staff restaurant facilities.

Application forms and further information may be obtained from the Personnel Officer, Town Hall, Chester or Tel: (0244) 40144 Ext. 2130. Closing date: 18th January, 1980.

For further details contact:
Roger Allington, quoting ref. FL18
OCC Contracts Personnel
1 Shootersway Park
Berkhamsted
Herts HP4 3NZ.
Berkhamsted 2289 (day/evening)

**Council of the
CITY OF CHESTER**

OCC Contracts Personnel

Assignment Periods — 6 months to 2 years

Holland

PD/P 11 Programmer	£400
BLISS experience essential	
System Recovery S/W reqd	
Min or M/frame Assembler reqd for level of on-line and real time data recovery and back-up facilities	
IBM Programmer	
MK4 & COBOL lesser. CICS pref	
UNIVAC 1100/series 80	
Analysis & Programmers are reqd for commercial & technical projects	

Germany

COBOL Programmers	£390
IBM pref. DB & German useful	
IBM Assembler Programmer	
CICS experience preferred	
PL/I Analyst/Programmers	
Assembler, PL/I, German knowledge and stock applications exp. ideal	
Analyst/Analyst/Programmer	
Some German reqd. for Text editing, processing system development	
Avionic A.T.E. Systems	
Hardware Software background reqd	
BASIC/ATLAS exp. ideal	

Italy

Software Development/Testing	£380
Operating Systems & Communications software for TC800, COSMOS, PAC	
PAL ideal but not essential Any	
Comms exp. will be considered	
£390	

Arizona — USA

Telephony Systems	£390
Major devlop project Analyst/Programmers reqd. with good telephony exp. e.g. Syst X, TX-E, MC	
£390	

Paris

Univac 80/30 Programmer	£400
COBOL lesson Duration 6 months	

Middle East

IBM Programmers	£450
Major IBM installation with DB/DC Exp. should incl. COBOL, PL/I & IMS	

UK — South East

PL/I/IMS Programmers	£300
Start dates through to April	
Honeywell L82 COBOL Programmers	
Simulation Systems Devol of Mini/Inset R.T. Systems	
Radar or similar exp. reqd	
PL/P 11 Dibol Programmers Early availability preferred	
Applications for other positions are always welcome from candidates interested in contract appointments.	

For further details contact: Roger Allington, quoting ref. FL18 OCC Contracts Personnel 1 Shootersway Park Berkhamsted Herts HP4 3NZ. Berkhamsted 2289 (day/evening)	£270
Council of the CITY OF CHESTER	
04427-2299	
Slough College of Higher Education	
£270	

Programmer/Analyst

Uxbridge — Middlesex
Circa £6,500 — ICL COBOL

The company has recently implemented its first on-line stock control system. This is a pilot scheme designed to lead on to many other on-line applications. Consequently there is excellent development potential and future in a fast growing environment.

For application form, contact: Personnel Manager, Applied Chemicals Ltd., P.O. Box 43, Salisbury Road, Uxbridge, UB8 2SW, or telephone him on Uxbridge 37151.

The right person will have 2-3 years' experience as a DOS computer operator and a good working knowledge of English.

One year contract with possibility of extension. Please apply in writing, enclosing curriculum vitae, copies of testimonials and recent photograph to the Personnel Section, Bank for International Settlements, Postfach 202, CH-4022 Basel, Switzerland.

SWITZERLAND

The Bank for International Settlements

An international institution in Basle, will have an opening as from 1st February 1980 for an

EXPERIENCED DOS/VIS OPERATOR

for its VM 370-148 computer. The right person will have 2-3 years' experience as a DOS computer operator and a good working knowledge of English.

Please contact: Brenda Smith, — Slough 34555, Ext. 26 — for further details, or write to: Chief Administrator VIS Officer, Slough College of Higher Education, Wellington Street, SL1 1YD.

SLOUGH COLLEGE COMPUTER UNIT

Part-time or Full-time Appointments

COMPUTER OPERATOR or TRAINEE

PUNCH OPERATOR or TRAINEE

Salary on scale (under review) rising to a maximum of £3,682 inclusive of area weighting (9% extra for full-time 2 shift working).

Please contact: Brenda Smith, — Slough 34555, Ext. 26 — for further details, or write to: Chief Administrator VIS Officer, Slough College of Higher Education, Wellington Street, SL1 1YD.



Start the year right with contracts in the North

CONTRACTS NORTH & MIDLANDS

PROGRAMMERS

IBM 370 OS COBOL. Good CICS and DLI essential. Commercial applications. N.W. location, 6-12 month contract.

£260

IBM 370 PLI PROGRAMMERS

Urgently required. Knowledge of Taskmaster and/or Adabas desirable. West Country location, 6 month contract.

£250

ANALYST PROGRAMMERS

IBM IMS DB/DC experience. Order Entry System. Midlands location, 6 month contract. Immediate start.

£250

PROGRAMMERS

IBM 370 OS IMS COBOL. "Copics" essential. Stock control. Midlands location. Immediate start.

£260

IBM 370 COBOL PROGRAMMERS

Some development involved. Midlands location, 12 month contract. Immediate start.

£260

ANALYST PROGRAMMERS

ICL 2960 VMEB COBOL IDMS essential. Various applications, 4 month contract. Immediate start.

£250

IBM PLI/COBOL PROGRAMMERS

DLI experience advantageous. Maintenance. Midlands location. Immediate start.

£260

ANALYST PROGRAMMERS

UNIVAC 9030 RPG II. Commercial applications, 6 month contract. Yorkshire location. Immediate start.

£250

For further information on these and other contracts telephone:
021-643 8867

Kensington House, Suffolk Street
Queenway, Birmingham B1

081-833 9341
Adamson House, Shambles Square
Manchester M3

**Knight Programming
Support Limited**
London•Manchester•Birmingham•France•Holland
INTERNATIONAL COMPUTER CONSULTANTS
TAKING CARE OF YOU AND YOUR FUTURE

Operating System and Software Development

- Technical Challenge • Stimulating Environment
- Wide Range of Projects • Successful Company
- State of the Art • Career Development
- Financial Reward • International Opportunities

We could go on and list many more of the prime attributes of your next job but we feel that if you are already a Systems Programmer you will probably know that ICL can more than meet your requirements.

At Bracknell we are involved in the development of a wide range of projects that will probably surprise you in their diversity and novelty. We need to recruit more people to help us to continue with our work and will be holding two open evenings, as detailed below.

The experience we are looking for will certainly be well rewarded (the salaries for these vacancies can go as high as £12,000).

If you are already in system software or have good applications experience you should certainly give us the opportunity of meeting you.

If you are an engineer with a bias towards micro-programming techniques, we would also like to talk to you. We look forward to seeing you!

Informal Interviews

LONDON

Tues. 15th January
Royal Garden Hotel,
High Street,
Kensington, London W.8
Anytime between 5.00pm-9.00pm

If you can't make either of these dates, then please ring me, Rob Wilson, on Bracknell (0344) 24842, Ext. 2750 to arrange an alternative time. Or if you prefer, simply post the FREEPOST coupon.

BRACKNELL

Wed. 16th January
ICL,
Lovelace Road,
Bracknell, Berks.
Anytime between 5.00pm-9.00pm

International Computers

think computers - think ICL



FREEPOST - no postage necessary. Just write to: Rob Wilson,
ICL FREEPOST (ref: CW 157 8 Lovelace Road, Bracknell,
Berks RG12 1BB).

I would like to know more about Operating System and
Software Development.

Name _____
Address _____

Tel: Day _____
Tel: Evening _____

Programmer

(A.P.5 - £5,220-£5,547 -
Comparability Award Pending)

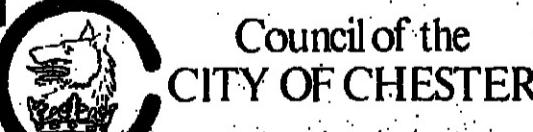
The authority have an I.C.L. 1801T (48k) with 2 x
EDS 90 and 4 x 40 K.C./S. Magnetic Tapes: a V.D.U. is
also in use.

Applicants should have had at least three years'
COBOL experience. A knowledge of PLAN and
DRIVEIT would be an added advantage.

The successful candidate will be required to assist
in program maintenance, conversion and development.

Benefits include flexible working hours, payment
of removal expenses, separation allowance and disturbance
grant in appropriate cases, staff restaurant facilities.

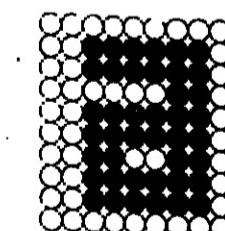
Application forms and further information may be
obtained from the Personnel Officer, Town Hall,
Chester or Tel: (0244) 40144 Ext. 2126. Closing date:
18th January, 1980.



Council of the
CITY OF CHESTER

Salesperson!

We require super salespersons
to join our growing team selling
Texas Instruments, Hazeltine
and NEC Peripherals.
Excellent Bonus Scheme.
Interested? Phone now on
01-580 8841



Abacus warehouse
62, New Cavendish Street,
London W1M 7LD

Programmer/Analyst

Uxbridge — Middlesex
Circa £6,500 — ICL COBOL

The company has recently implemented its first on-line stock control system. This is a pilot scheme designed to lead on to many other on-line applications. Consequently there is excellent development potential and the above position will be filled by a Programmer seeking a progressive future in a fast growing environment.

For application form, contact: Personnel Manager, Applied Chemicals Ltd., P.O. Box 43, Selsbury Road, Uxbridge, UB8 2SW, or telephone him on Uxbridge 37151.

SWITZERLAND

The Bank for International Settlements
an international institution in Basle

will have an opening as from 1st February 1980 for an

EXPERIENCED DOS/VS OPERATOR

for its VM/370-148 computer. The right person will
have 2-3 years' experience as a DOS computer operator
and a good working knowledge of English.
One year contract with possibility of extension.

Please apply in writing enclosing curriculum vitae,
copies of testimonials and recent photograph to the
Personnel Section, The Bank for International Settlements,
Postfach 282, 4000 Basle, Switzerland.

OCC Contracts Personnel

Assignment Periods — 6 months to 2 years

Holland

■ PDP 11 Programmer	£400
■ BLISS experience essential System Recovery S/Ware	£400
■ Min or M/ frame Assembler reqd. for devl of on-line and real time data recovery and back-up facilities.	£400
■ IBM Programmer	£400
■ M.4 & COBOL essen. CICS pref	£400
■ UNIVAC 1100/series 80	£400
■ Analysis & Programmers reqd for commercial & technical projects	£400

Germany

■ COBOL Programmers	£390
■ IBM pref. DB & German useful	£380
■ IBM Assembler Programmer	£380
■ CICS experience preferred	£450
■ PL1 Analyst Programmers	£380
■ Assembler, PL1, German knowledge and stock applications exp. ideal	£400
■ Assembler Analyst Programmer	£380
■ Some German reqd. for Text editing/ processing systems development	£400
■ Avlonic A.T.E. Systems	£380
■ Hardware / Software background reqd.	£400
■ BASIC/ATLAS exp. ideal	£400

Italy

■ Software Development/Testing	£390
■ Operating Systems & Communications software for TCB00 COSMOS, PAC / PAL ideal but not essential Any Comms exp. will be considered	£390
■ Enq	£390

Arizona — USA

■ Telephone Systems	£390
■ Major devl project Analyst Programmers reqd. with good telephony exp. e.g. Syst Y, TKE4, etc	£390

Paris

■ Univac 80/30 Programmer	£400
---------------------------	------

Middle East

■ IBM Programmers	£450
-------------------	------

UK — South East

■ PL1/IMS Programmers	£300
■ Start dates through to April.	£280
■ Honeywell L82 COBOL	£270
■ Programmers	£270
■ Simulation Systems	£270
■ Devl of Mini based RT Systems	£270
■ Radar or similar exp. reqd.	£270
■ PDP 11 Cobol Programmers	£270
■ Early availability preferred	£270

■ Applications for other positions are always welcome from candidates interested in contract appointments.	£270
■ For further details contact:	£270
■ Roger Allington, quoting ref. FL18	£270
■ OCC Contracts Personnel	£270
■ 1 Shootersway Park	£270
■ Berkhamsted	£270
■ Herts HP4 3NX	£270
■ Berkhamsted 2299 (day/evening)	£270

Slough College of Higher Education

■ SLOUGH COLLEGE COMPUTER UNIT	Part-time or Full-time Appointment
■ Computer Operator or Trainee	Computer Operator or Trainee
■ Punch Operator or Trainee	Punch Operator or Trainee
■ Computer Operator or Trainee	Computer Operator or Trainee
■ Computer Operator or Trainee	Computer Operator or Trainee

Engineer

Move into
Datacommunications
£6,000
Berks
(Relocation Package)



London 01-935 0871 3 Mandeville Place, Wigmore Street, London W1M 5LB
Birmingham 021-236 3781 35-37 Great Charles Street, Queensway, Birmingham B3 3JY
Manchester 061-833 0427 Blackfriars House, The Parsonage, Manchester M3 2JA

Specialist Computer Recruitment Ltd

OPERATIONS

Two Outstanding New Career Opportunities

Our Client is the Hoskyns Group, a dynamic organisation which in 14 years of growth has become a leading name in the Computer Industry, with 13 Computer Centres now employing over 500 people nationwide. Recent developments mean that they can offer new opportunities at their London offices:

OPERATORS

Profile:- An ideal opportunity to join a highly professional team working in a bureau environment offering not only variety & new experience but where promotion and salary increases are by capability rather than length of service with the company.

Required:- 18 months - 2 years experience on an IBM 370 (including DOS POWER VS) and the potential to progress rapidly into Senior Operator/Shift Leader status.

TECHNICAL SUPPORT

Profile:- An excellent career opportunity for someone seeking a move away from regular shift work to join a team involved in technical support. The job involves a considerable amount of responsibility and client liaison, with good prospects.

Required:- Around 3 years experience with a good technical background, client liaison ability and working knowledge of JCL.

If you'd like to find out about the variety and new experience which working a bureau environment can offer, ring Sharon Landau at SBS on 01-734 0562 (24 hr) for the full details on Hoskyns and these new opportunities.

SBS RECRUITMENT

There can be little doubt as to the advantages of working with a Market Leader. Our Client is just that.

Specialising in high quality, comprehensive modem/multiplexor/network control systems, they have rapidly captured over 50% of the current private installed market in the UK. Their service and reputation support is second to none. Turnover has risen to the current rate of £20 million per annum.

That's quite a track record.

Such growth has given rise to this important position.

Essentially you should possess a sound electrical/electronics background.

After product training you will work closely with Systems Engineers in designing, configuring and supporting comprehensive data communications networks.

This is an excellent opportunity to grow within a technically attractive and rapidly expanding sector of the market.

This position carries the use of a company car
Contact Dave Scarlet on 01-935 0671 or (evenings & weekends)
01-540 3549

Systems Analysts & Programmers

WHY 1980 COULD BE YOUR YEAR

Make a move for better pay

Here at Tesco's Cheshunt Computer Centre we've just given big salary increases to our staff—which means that Analysts are now earning from £7,000—£10,500 p.a., and Programmers and Consultant Programmers from £6,000—£10,000 p.a.

What's more, the sheer pace at which we are developing to meet the needs of Britain's fastest growing retail chain guarantees tremendous prospects with plenty of opportunity to move up—and around—within the Computer Division.

New hardware.... and a new challenge

We have just taken delivery of an IBM 3033. And bearing in mind that we regularly run over 1000 programs relating to every aspect of our business, you will appreciate this is a unique chance to tackle some of the most exciting systems development work anywhere in the U.K.

Tesco have always been innovators—and now we're breaking new ground in computer applications in the retail business. Join us... and look forward to taking up a real challenge to your professional skills.

Tesco Cheshunt—at your convenience

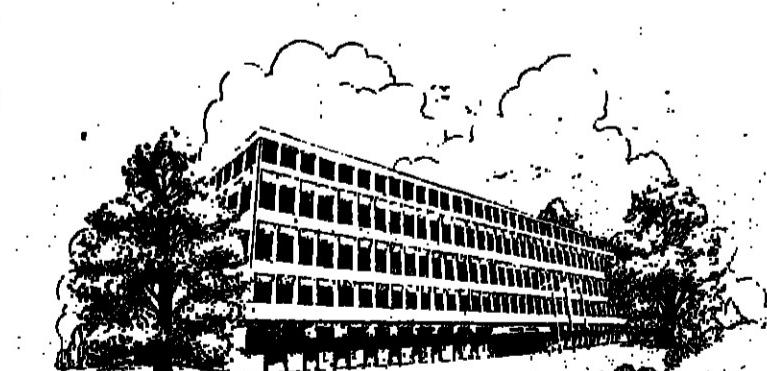
Do you commute? Are you holed up

in some dingy London office? Then it makes even more sense to make the move to Tesco.

Tesco House is a well-equipped modern building set in pleasant rural surroundings and the Tesco Country Club offers excellent sports and social facilities. You can also enjoy a first class subsidised staff restaurant and the company will pay your relocation expenses, should you need to move house.

Your move.... for a great 1980

If you have at least a year's systems experience or a year's COBOL programming experience, make the first move by getting in touch with Sue Horner, Senior Personnel Officer, Tesco Stores Ltd., Delamare Road, Cheshunt, Herts, EN8 9SL. Telephone Waltham Cross 32222.



POSTAL APPLICATION

Name
Address
Tel No.

CW10/80

TESCO

CHALLENGING APPOINTMENTS FOR ENGINEERS IN FREIBURG/BLACK FOREST GERMANY

A leading West German company in the development and manufacture of inertial navigation and computer systems for aircraft and ships has immediate openings for the following positions:

Test Programmers

LRU testing. Experience is required in preparing test requirements, writing test specifications in ATLAS or adapted ATLAS and the preparation and commissioning of test programs for complex digital equipment.

Card testing. Experience is required in the use of digital simulators for the preparation of test programs and the subsequent commissioning on ATE Knowledge of the D-LASAR system or the TI 950 ATE is desirable, but not mandatory.

Applicants should have a minimum of three years' relevant experience. Knowledge of German is not essential.

Salary will be commensurate with experience and qualification. Due to the general salary level of engineering personnel in Germany, very attractive offers can be made. Bonuses include, among others, 28 working days' vacation and 13 public holidays per year, assistance in finding living accommodation and reimbursement or relocation expenses for employee and family.

Interested candidates should forward a detailed résumé to —



LITTON TECHNISCHE WERKE

Personnel Department, Postfach 774

D-7800 Freiburg i. Br. Germany

CLASSIFIED COPY

All classified copy should reach our offices no later than 3.30 p.m. on the Monday preceding Thursday's publication.

If complete artwork is supplied, 11 a.m. on a Tuesday.

Ring Ray Kelly for further details on 01-261 8016.

DEVELOPMENT SPECIALISTS

ASSEMBLER HIGH LEVEL LANGUAGES

A leading software house, known internationally for the development of ANSI COBOL compilers for microprocessors is seeking several technically advanced development specialists who can demonstrate expertise and interest in the development of high level language translators.

Those appointed will work in a modern office environment in Swindon, at the heart of rural Wiltshire. They will be responsible for the further development of the company's products including CIS COBOL and CORAL 66. These products already run on equipment based on Intel 8080, 8085 and 8086, Zilog Z80 and DEC LSI - 11 microprocessors. Due to the easy portability of the software, implementation on other microprocessors and operating systems is in progress for 1980.

SWINDON

Salary Circa £10,000

GENEROUS RELOCATION EXPENSES

Positions open to male & female applicants, please telephone (24 hour service) for initial discussion or write to address below. QUOTE REF. CW 101F



CAPP ASSOCIATES
LONDON AND MANCHESTER



01-686 9693
A.M.P. HOUSE, DINGWALL RD
CROYDON, CR9 2AU

MYRIAD

SALES EXECUTIVES

C. LONDON

SENIOR £10,000-£12,000
JUNIOR £6,000-£8,000

Please apply to:
MARION ROBINSON
PERSONNEL
MANAGER
KANGO ELECTRIC
HAMMERS LTD.
26 LOMBARD ROAD
SOUTH WINMBLEDON
SW19 3XA
Tel: 01-542 8544

These vacancies present excellent opportunities for experienced Sales personnel and those seeking to follow a career in sales. Applicants will be interested in business matters and keen to develop management skills in a position offering job satisfaction and high rewards. Dealing with people, developing professional relationships and understanding client requirements will be a major aspect of the work, involving both personal communication and computing skills.

Successful candidates with sound computer programming and/or analysis experience gained in a commercial environment should be aged under 32. An awareness of business gained in a Contract Programming/Analysis or a Consultancy role would be particularly relevant and a desire to grow with the Company is of prime importance.

The Senior appointments offer a first year total salary in the region of £10,000-£12,000 after which a company car is available. The Junior appointments offer a realistic first year total salary in the region of £6,000-£8,000. In both cases substantially higher figures will be achievable following on the job training during the first year. The Company offers good conditions of employment and excellent career prospects.

Ref. AW2/100

MYRIAD APPOINTMENTS LIMITED
30 Fleet Street London EC4Y 1AA
01-353 0981 (24 HOURS)

Further details and application form to be received by 25th January 1980 from: The Secretary, City of Birmingham Polytechnic, F Block, Barr, Birmingham B42 2SU (021-356 6911, Ext 212).

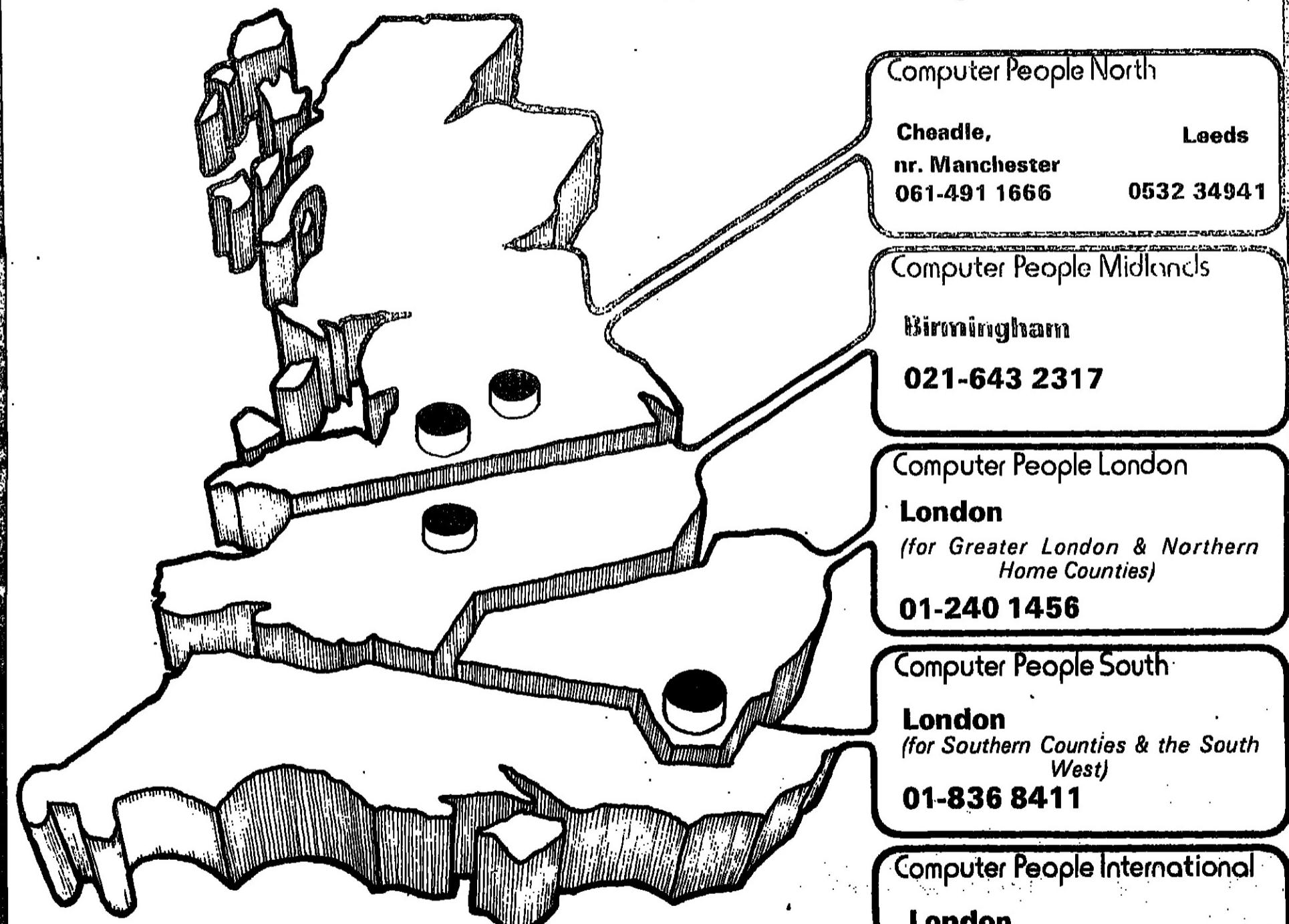
SALARY SCALE: LECTURER I £3480-£3982.

Our client's customer base is expanding rapidly worldwide and they wish to take on board people who can grow with the company as it develops still more advanced software. The salary and relocation package reflect the value which the company places on both its products and employees.

If you believe that you have technical strength and are seeking a highly challenging environment, please write or telephone Capp Associates for further details and application form or send us your C.V. We will respond immediately to your enquiry.

1980

Our Computer People companies have a
NEW STRUCTURE for the 1980's
Each company now provides a
PERMANENT RECRUITMENT and CONTRACT
service to clients and applicants in the region



The VLI group Ltd. 68-69, St. Martin's Lane,
London WC2N 4JS.



a member of
Computing
Services
Association

Computer People International

assignments

We currently have the following requirements abroad:

IBM OS COBOL CICS	Delaware
IBM OS COBOL	New York
IBM IMS PL1	Holland
H.P. 3000 COBOL	Philadelphia/Belgium
H.P. 1000 FORTRAN	Philadelphia

Throughout 1979 we sent people on assignments to California, Minnesota, New York, Texas, Louisiana, Ohio, Kuwait, Holland, Belgium and Chile.

All successful candidates become members of our permanent staff and salaries are in the region of \$23,000 to \$32,000 per annum dependent upon experience.

Even if you do not have the above skills but wish to work overseas during 1980 register with us now using the coupon below or ring us on 01-836 8411 NOW.

Mail (no stamp) to FREEPOST, VLI House, LONDON WC2N 4BR

01-836 8411

I am interested in overseas assignments

Name _____
Address _____
Tel (day) _____ CPI _____
(eve/wkd) _____

Computer People South contracts

IBM

370 OS IMS COBOL Programmers
370 OS IMS PL1 Programmers
370 OS/MVS ASSEMBLER Programmers —
Michael Jackson Structured prog. essential
Sys. 34 RPGII Systems Analysts
Sys. 34 RPGII Analysts/Programmers & Programmers

IMS CONTACT

Programmers required to work on new and interesting projects starting this month on the South coast. Programmers should have PL1 and IMS with TSO and JCL experience, if possible. All contracts will be six months minimum in prestige offices. This is an excellent opportunity for programmers to work with one of the world leaders in the computer industry.

To find out more about these and many other contracts beginning this new year, or to discuss contract work generally, call in or phone John Kelly and Barbara Wolsky on . . .

Mail (no stamp) to FREEPOST, VLI House, LONDON WC2N 4BR

01-836 8411

I am interested in contracts
Name _____
Address _____
Tel (day) _____ CPI _____
(eve/wkd) _____

Computer People London

contracts

CURRENT REQUIREMENTS

IBM OS IMS PL1 programmers wanted for 3 month contracts in Central London. COBOL, TSO and Librarian would be useful additional experience.
IBM 370 OS CICS COBOL Programmers
IBM 370 DOS CICS COBOL Analyst/Programmers
PDP11 RSX11M BASIC+2 Programmers
PDP11 RSTS/E BASIC+2 Programmers
H62 GCOS COBOL Programmers
H64 GCOS COBOL Programmers
U90/30 COBOL Senior Analysts
ICL 2960 VMEB Systems Support Analysts
NCR Century NEAT 3 Programmers
DG MINI COBOL Programmers
Banking Analysts

Start a bright new future with us in this new year, we have many immediate contracts as well as others which will start over the next few months. If you are interested in any of these contracts, or in contract work generally, and have at least two years' experience, come in and see us: John Kelly and Barbara Wolsky, or call us on . . .

Mail (no stamp) to FREEPOST, VLI House, LONDON WC2N 4BR

01-836 8411

I am interested in contracts
Name _____
Address _____
Tel (day) _____ CPI _____
(eve/wkd) _____

Computer People Midlands

contracts

IBM

PL1 TASKMASTER Programmers
PL1 OS/VS JCL Programmers
PL1 CICS Programmers
PL1 IMS DB/DC Programmers
COBOL CICS DL1 DMS Analyst Programmers
COBOL CICS DL1 Analyst Programmers
Systems 34 RPGII MAPICS Programmers
3790 Programmers

OTHER REQUIREMENTS

2903/4 TPS COBOL Programmers
1900 GII PLAN COBOL Systems Designers
Univac 9000 COBOL Programmers (TOTAL an advantage)
Univac 1100 COBOL DMS Programmers
Univac 9000 RPGII Analyst Programmers
Univac SUBAS Analyst Programmers
Burroughs B1800 Programmers
Burroughs 6800 COBOL Programmers
Systems Analysts — manufacturing experience
Systems Analysts — conversion experience

Honeywell COBOL IDS II Programmers
VENTEK DATASHARE

REAL-TIME SYSTEMS DESIGNERS

— Programming experience in CORAL 66 ALGOL or PASCAL an advantage.

FOR MORE DETAILS, PLEASE RING WENDY ON 021-643 2317

Mail (no stamp) to FREEPOST, Computer People, Midlands, Alpha Tower, BIRMINGHAM B1 1BR.

I am interested in contracts

021-643 2317

Name _____
Address _____
Tel (day) _____ CPI _____
(eve/wkd) _____

Computer People

North
contracts

IBM

IBM 3033 IMS COBOL OS Analyst Programmers
 IBM 3033 IMS Programmers
 CICS Systems Designers
 Database Designers
 System 32 RPGII Programmers
 CICS ASSEMBLER Applications Programmers
 370 COBOL (TOTAL) Programmers
 370 CICS Systems Designers
 8100/DPPX COBOL Programmers
 370 COBOL CICS DOS VS Applications Programmers
 with structures programming experience
 370 PL1 OS JCL Programmers
 370 Production Analysts (Database)
 370 FORTRAN Programmers

ICL

2960/70/80 COBOL IDMS Programmers

OTHER REQUIREMENTS

Burroughs COBOL on-line Programmers
 Technical Authors
 Hewlett Packard 1000/3000 Programmers
 Univac 1100 ASSEMBLER EXEC 8 Programmers

Please ring our Manchester office for more information on these and other opportunities

IBM

PL1 ASSEMBLER Programmers
 ASSEMBLER CICS Programmers
 COBOL DL1 CICS Programmers
 Analysts — communications and Database experience

ICL

2960 DME Programmers
 1900 George III COBOL Programmers

HONEYWELL

L66 IDS/TDS Programmers

Please ring our Leeds office for further details

Mail (no stamp) to FREEPOST, Computer People North, Sovereign House, Stockport Road, Cheadle, Cheshire SK8 1YD.

Manchester
061-491 1666

Leeds
0532-34941

I am interested in contracts

Name Tel (day)

Address (eve/wkd)

CoOperators

contracts

OPERATORS

Get a contract with US
 —we specialise in contracts for operators

We have seven years' experience in contract operations, and as a member of the VLI group can offer the security and versatility of working for market leaders.

If you have 19 months' operating experience on any hardware, you should be talking to us. Call us today to explore the possibilities, and for details of the following and many other UK and international assignments.

HONEYWELL

OS2000 South Coast

H66 GCOS Home Counties

IBM

OSVS1 VM SE England

DOS VS POWER SE England

OSVS1 JCL Writer Midlands

OTHERS

ICL 1900 GI & GII Home Counties

Burroughs 6700/6800 Home Counties

Univac 1100 North London

Univac 9480 North London

Mail (no stamp) to FREEPOST, VLI House, London WC2N 4BR

01-836 8411

I am interested in contracts

Name Tel (day)

Address (eve/wkd)

PCO

DOS OPERATOR

Two Shifts
 in Croydon
 to £6,000

SCOPE

SCOPE PERSONNEL SERVICES LTD
 Central House, 27 Park Street,
 Croydon, CR0 1YD

01-680 5920

If you have upwards of one year's operating experience gained in an IBM DOS environment, then this is the ideal opportunity for you.

A large international company have successfully installed an IBM 370 mainframe in a purpose built data centre in Croydon. Running under DOS/VS and POWER/VS, both batch and on-line work is processed.

With an IBM 4341 due for delivery middle of this year, an operator is now required to strengthen the existing operations team. A two shift system is worked with two operators per shift. The working conditions are first class and job involvement is encouraged. Promotional prospects are good, for example, this current vacancy has been caused by an Operator moving into the programming area.

A competitive salary will be paid together with excellent benefits such as L.V.'s, free life assurance and non-contributory pension.

We have no hesitation in recommending the friendly working environment to any Operator who may be considering changing his job, perhaps for the first time. Therefore do not delay, contact SCOPE for further details.

Quote ref: CW45.

Sales Executives

MINI COMPUTERS U.K. COMPANY

Income Package
 £16,000 plus
 Company Car

SALES TERRITORIES

LEEDS
 NEWCASTLE

Our Clients are a fast-growing British Computer Manufacturer based at Stevenage, their current turnover is in excess of £3½ million and confidently expect to exceed £6 million during 1980. In addition to being a manufacturer they also have a software house and their own maintenance and media supplies Company, and are one of the few Organisations in Great Britain to have their own rental facilities.

The equipment is of excellent quality and is extremely competitive throughout the mini-computer market place with particular specialisation on communication systems. The full range is completely compatible and can be upgraded at any stage in its growth.

Due to continued expansion they are now wishing to recruit experienced Sales Executives to take control of the Leeds and Newcastle territories based out of their Northern Regional Offices situated in Harrogate.

The candidates should be self-motivated, and have a proven track record in the mini computer sales field.

You will receive a substantial income package, plus Company. Realistic quota objectives, coupled with excellent technical and management support, will ensure your career progression with this professional and expanding Company.

For confidential interview you should CONTACT ME: Tony Blakeley, on 01-833 0427 or 061-652 8996. Evenings and Weekends.



London 01-435 0571 3 Mandeville Place, Wigmore Street, London W1M 5LB
 Birmingham 021-236 3781 35-37 Great Charles Street, Queen'sway, Birmingham B3 3JY
 Manchester 061-833 0427 Blackfriars House, The Parsonage, Manchester M12 2JJ

SYSTEMS ENGINEERS

**Office Computer Systems
(P7000)**

MAIDENHEAD AND MANCHESTER

As a result of a successful year, we are faced with increasing demands for our products throughout the U.K. Backed by the progressive technology of the world renowned Philips Group, we market a range of office computer systems. The P7000 is a highly successful transaction and distributed processing system which can be used, with word processing as a multi-function business processor.

We are currently one of the fastest growing companies in the data processing industry, as a result of substantial upsurge in business, vacancies have arisen for Systems Engineers:-

Based at either Maidenhead or Manchester, the successful applicant will be responsible for pre- and post-sales support including the following activities:-

- * Analysing and defining of customer applications.
- * The development and presentation of both demonstrations of our products and training courses.
- * Installing the P7000 on customer's premises, ensuring by close monitoring and control, that the requirements of the customer are met.

PHILIPS
Simply years ahead

If you wish to know any more details please telephone or write for an application form to Mr H. W. Hampson-Jones, Personnel Officer, Philips Data Systems, Elektra House, 2 Bergholt Road, Colchester, Essex. Tel. No. (0206) 5115.



ANALYSTS & PROGRAMMERS Looking for better prospects?

Whatever future prospects you have in mind, you'll find the Ferranti have plenty to offer.

Through our vast knowledge and experience of computing and communications systems, we have built a wide range of projects to stimulate even the most demanding minds of today's computer professionals.

From commercial applications such as accounting, costing, stock control, production control, loading and scheduling to Real Time and Data Base etc. - that's the kind of variety you'll get.

And, being in the forefront of advanced technology, we can look forward to an exciting, challenging future.

Right now we're expanding our Internal Computer Services and, as a result, need experienced Programmers and Analysts.

Based at our Computer Centre in Hollinwood, Lancs., you will be working with a highly-skilled team presently using the facilities of 128K ICL 19048 with EDS 801, Magnetic Tapes, and an ICL 2950 dedicated to Real Time.

Programmers will need a sound knowledge of a high level language, such as COBOL, and be able to adapt to other techniques such as IDMS. Both Systems Analysts will be required to design systems and to act as consultants to other departments and should, therefore, be able to communicate clearly and precisely.

If you fit these requirements, we can offer attractive salaries, excellent fringe benefits and unlimited future prospects.

INTERESTED?

For further details contact: Mr. P. Harrison, Personnel Dept., Hollinwood, OLDHAM. Tel: 061-681 2000 Ext. 222.

FERRANTI

Have you the Systems experience to reap the rewards of our investment?
**Senior Systems Analysts £8,000-£9,000
Analyst Programmers £7,000-£8,000**

"I am programmed to analyse your replies"



You'll already know Fine Fare as one of the country's top multiple retailers and now you may well have heard of us as innovators in store-based electronic point-of-sale systems and as pace-setters in the growing field of on-line applications.

For some years now we have invested heavily in advanced computer systems in order to achieve our spectacular growth, and we are currently investing £1 million in major, new-on-line PDP 11 network, whose benefits will be felt in our stores and distribution centres across the country. More than that, we're developing our Systems Analysts in Welwyn Garden City - investing in fresh-thinking systems people matching their talents with our development plans.

Retail computing will be a major growth area for the 80's - and we're offering the chance to add that growth to your career now. Join our highly professional development team and we'll promise you a fast-moving, fast-growing environment.

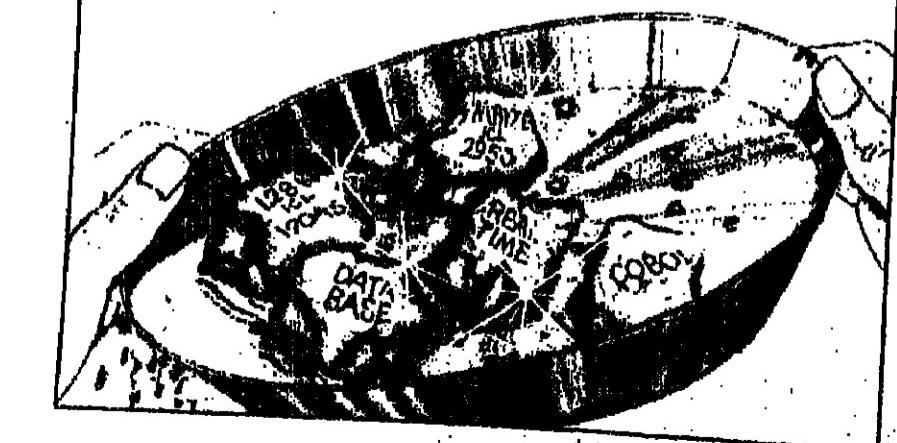
Together with our attractive salary and fringe benefits package, pleasant working conditions and open career path, we're offering you the chance to be in the beginning of something really big. Can you afford to ignore the opportunity? If you have around 5 years' experience relevant to accounting, product information, retail or non-food stock control systems, we want to hear from you.

Ring our Systems Development Manager, Mike Bradley, on Welwyn Garden 26140 extension 121 or send the FREEPOST coupon for further information.

Send to Mike Bradley,
Systems Development Manager,
Fine Fare Limited, FREEPOST, Gate House,
Fretherne Road, Welwyn Garden City, Herts.
Name _____
Address _____

CLASSIFIED COPY

All classified copy should reach our offices no later than 3.30 p.m. on the Monday preceding Thursday's publication.
If complete artwork is supplied, 11 a.m. on a Tuesday.
Ring Ray Kelly for further details on 01-261 8016.



SHARE IN THIS SUCCESS AND MARCOL'S OTHER GLITTERING PRIZES!

Salaries to: £10,000 (UK) £18,000 (Europe)

MARCOL, one of Europe's leading software houses, urgently require experienced programming staff to support new and existing projects both in Europe and the U.K.

If you have experience in any of the following:-

● Honeywell Level 66 GCOS & Level 62 TPS

● ICL 2900 VMEB/VMEK & ICL 1900 COBOL

● IBM 360/370 IMS, CICS

● COBOL, PL1, RPGII, Assembler, FORTAN & Database

● UNIVAC 1100 & 90 Series

MARCOL can offer you:-

● Highly competitive salaries

● A structured career path

● Interesting and challenging work

● A range of top class company benefits

For further information please contact:

Derek Ashley/Penny Bailey,
Marcol Computer Services Limited,
60 Queen's Gardens, London W2.
Telephone: 01-402 9355.

MARCOL

Total Capability from the Marcol Group.

WEST YORKSHIRE Senior Systems Analyst c £7,000

A major group based in West Yorkshire requires a Senior Systems Analyst to head-up a team engaged in the development of financial systems. In addition to work for the Group the Computer Services Company undertakes a considerable amount of work on a bureau basis for external organisations. Candidates should have a successful record of developing and implementing accounting systems including payroll, purchase, sales and nominal ledger systems in a variety of situations. Whilst the main requirement is for systems experience a programming background would be useful.

Remuneration package will include salary around £7,000, non-contributory pension scheme, and relocation expenses where appropriate.

Applicants are invited to contact Ivor Norton, quoting reference CW/8001, to arrange a confidential discussion about this outstanding career opportunity.

Ivor Norton Management Services Ltd
Recruitment Consulting Division
P.O. Box 63, Copthall Tower House, Harrogate HG1 1TS. Tel: Harrogate 6628
24 hour answering service (0423) 65311



A HAPPY NEW YEAR WITH FORD CREDIT



**COBOL
PROGRAMMER/ANALYST
UPTO £8,100 PA.**

Why not set your sights high with this new position just created at Ford Credit, the world's second largest finance company.

We are a wholly-owned subsidiary of the Ford Motor Company Limited with all the resources and backing which that implies. There are excellent opportunities of advancement not just with Ford Credit, but throughout the Ford organisation.

KNOWLEDGE AND ENTHUSIASM

You will be an important member of a small team developing accounting and management information systems at our Central Office in Brentwood, Essex. Equipment at your disposal includes IBM 370/158 and an Amdahl V5.

We would like you to have a keen interest in systems analysis and design, two or more years programming experience, a good knowledge of COBOL, and a working knowledge of OS/JCL. A current driving licence is essential.

(This position is open to male & female applicants)

POSTAL APPLICATION	
Name _____	_____
Address _____	_____
Tel No. _____	_____
Age _____	Salary _____
Job No. _____	Computer _____
Length of service _____	Op. Systems _____

BOX Nos.	
CONTRACT VACANCIES IN THE MIDLANDS AND SOUTH FREELANCE PROGRAMMERS & ANALYSTS COMPETITIVE RATES - INTERESTING ASSIGNMENTS REGISTER NOW WITH THE SPECIALISTS	
PHONE 021 443 6116 (24 hours) to register or send your cv, to: PROJECT RECRUITMENT LIMITED 100 Flockton, Solihull, Warwickshire B90 8JL 021 588 6277	

USA

Systems Analysts Analyst/Programmers Programmers

- ★ \$17500 - \$28000
- ★ Medical, dental, life insurance
- ★ 18 - 24 months
- ★ In-house training
- ★ Relocation expenses including return air fare

We are one of the top consulting companies in America and have openings at most levels in project management, systems design and analysis, applications programming, data base design and teleprocessing. Contracts are for 18 - 24 months in America with one of our offices and will normally involve working on two or three assignments with our clients. Whilst in America we offer all the security and benefits of our permanent staff including medical, dental and life insurance, holidays and ongoing training.

We are looking for individuals with 2+ years of IBM 370 programming experience (or equivalent) who welcome the challenge and career development of living and working in America.

To arrange an interview January 14 - 18 (expenses paid) write now enclosing your c.v. or telephone ROGER BARNEs at

SOFTWARE DESIGN ASSOCIATES
4-6 Copthall Avenue, London EC2R 7DA
Telephone: 01 628 4200
and at New York City, Chicago,
Union NJ, Farmington CT, Greenwich CT,
Philadelphia PA, Dallas TX.

SIDA

STOP PRESS

We have just opened our London office.
Services offered will be:

PROFESSIONAL SERVICES:
technical consultancy in design, analysis and programming.

LEARNING SERVICES:
workshops in managing system development projects, systems analysis, effective systems design, structured programming, effecting writing skills in EDP.

SOFTWARE PRODUCTS:
OS data centre scheduler DIMENSION V, Cobol precompiler SCORE and associated methodology, OS and DOS MONITORS INTERCOMM and MINICOMM.

There will very shortly be ground floor opportunities, mainly in **PROFESSIONAL SERVICES**, offering the opportunity to work in the UK and then America. Ring Roger Barnes now for details.

BOX Nos.

Box number replies should be addressed to:
Box No.
c/o Computer Weekly
Dorset House, Stamford Street, London SE1 9LU

OPERATORS

We have permanent vacancies for Group 2 Operators & 3 Operators for IBM DOS/POWER operators. 28 hours per week. We also need a 2800 contract operator.

Knight Programming Support Limited
INTERNATIONAL COMPUTER CONSULTANTS
London • Manchester • Birmingham • France • Holland



Fly high with us on a European contract

ANALYST/PROGRAMMERS

Eng
SOUTH HOLLAND

We urgently require good Analyst/Programmers with any mini experience using Cobol. Initially a 3-month contract. Commercial applications.

DATABASE DESIGNER

Eng
HOLLAND

Experienced DATABASE Designers with an in-depth knowledge of IMS DB/DC required for an initial 6-month contract based in Amsterdam to start now.

SYSTEMS CONSULTANT

Eng
HOLLAND

An in-depth knowledge of the IBM System 34 to advise clients with regard to File Structure, programmer advice, etc. Start as soon as possible for 6 months initially.

ANALYST/PROGRAMMERS

Eng
HOLLAND

NCR 8200 programmers with a good IMOS experience. Cobol is the language. Start immediately on an initial 3-month contract.

ANALYST/PROGRAMMERS

Eng
HOLLAND

IBM DOS COBOL experience with a knowledge of DMS is required now by our client in South Holland. A 3-month contract initially.

ANALYST/PROGRAMMER

Eng
HOLLAND

PDP, RSXII, FORTRAN and/or MACRO 11 plus RMS experience software systems knowledge for TRAFFIC CONTROL System, based near Amsterdam. 3 months' contract initially. Start as soon as possible.

ANALYST/PROGRAMMER

Eng
HOLLAND

Assembler and RPGII required preferably with a knowledge of Univac 90/30 but will consider IBM OS or DOS background. An urgent requirement for an initial 6 months.

Please phone or write to the Contract Division or your nearest KPSL office to find out more about these and many interesting assignments.

01-734 0152
LONDON

021-643 8867
BIRMINGHAM

061-833 934
MANCHESTER 24 HOURS

Computer Operators

Up to £5,500 p.a.

We require competent Operators to work on our installation of two 1904Ss and two 2960s, with numerous peripherals including on-line equipment.

To join these teams operating a shift system covering Monday to Saturday (34 hour, average four day week) you should be aged over 19 years, with a minimum of 1 year's experience on ICL 1900 series or some 2960 experience.

You can expect to earn up to £5,500, inclusive of shift allowance. Benefits include relocation expenses, house purchase scheme, four weeks' annual holiday, non-contributory pension, free life assurance, luncheon vouchers, 24 hour staff restaurant etc.

For further details and an application form telephone Rita Sidders on 01-952 2333, or write to her at:

Bankers' Automated Clearing Services Limited,
3 De Havilland Road,
Edgware, Middlesex.

BACS

Analyst/Progs

Systems Analysts

North London

£6.8K-£9K

Ourdient, a progressive company within a multi-million pound group of companies, is seeking more career minded, talented people to join their Systems Department in North London.

This is sophisticated development at its best, using high speed communications links to a very powerful mainframe: development facilities are at the state-of-the-art.

The Company is dedicated to the profitable use of computer systems throughout the group. Projects are varied and challenging, ranging from distributed processing using linked mini computers through to financial, sales and corporate systems; most recently adding a time sharing service.

If you have a proven record, preferably with a COBOL background but essentially with the attitude for a successful career, please send personal and career details to Terry Harvey, or contact him for an application form.

HR **Harvey Recruitment**
Executive and Computing Personnel Consultants
500 Chesham House, 150 Regent Street, London W1R 5FA. Tel: 01-734 5351

COMPUTER WEEKLY

the newspaper computer people
rely on for

APPOINTMENTS

And there are five good
reasons why recruitment advertisers
rely on it, too.

92,000 PLUS CIRCULATION.

The largest in the field—and continually growing. It's rigorously controlled and updated to ensure maximum coverage of key computer personnel.

MORE REQUESTED COPIES.

Almost all readers either personally request or buy their copies—a claim no other computer journal can make.

HIGH QUALITY EDITORIAL.

A recent independent survey showed that Computer Weekly is considered the best journal for news—and the best medium for jobs—at all levels of the industry.

REGIONAL RECRUITMENT FEATURES.
They are editorially supported—and appear regularly.

HIGH RESPONSE RATE.

Even in today's tricky computer recruitment situation, a high response is regularly reported by advertisers.

FOR RESULTS, RECRUIT

COMPUTER WEEKLY

London: 01-261 8028/8019/8174

Manchester: 061-872 4211

Birmingham: 021-356 4838

Dorset House, Stamford Street, London SE1 9LU
Published by IPC Electrical Electronic Press Ltd

COMPUTER PATENT ANNUITIES

A professional firm engaged in the renewal of patents and Trade Marks throughout the world need a

MANAGING PROGRAMMER

to undertake a two year appointment in this low tax area in order to structure our small programming team.

The successful applicant will have proven experience in managing staff, devising and implementing standards and procedures, and leading project teams—probably in a tightly organized, medium sized site—and will be required to work closely with our Chief Programmer.

CPA have an NCR V8555M mainframe, and ideally, though not necessarily, candidates will be experienced on NCR computers. Knowledge of on-line systems will be useful, and of COBOL essential.

Please write, giving full details of age, marital status, education, experience and current salary to Ian Thomas, Computer Patent Annuites, Union House, Union Street, St. Helier, Jersey, C.I.

Targa

PROGRAMMER/ANALYST C. LONDON £8000

A large Manufacturing Company is looking for a Programmer/Analyst to join their small systems team. The successful applicant will have at least 2 years' COBOL experience with a good systems background.

The job involves deputising for the Data Processing Manager therefore Management skills are as important as technical abilities. Due to rapid expansion the client is upgrading from Burroughs therefore experience with applications from any Hardware background is welcomed.

IBM OS

3 shift working in Middlesex. Multi machine and Hardware environment.

IBM DOS

Training officer required for North London/Herts company. Responsibility for all training in H/W & S/W.

IBM DOS

2 shift working in West London. Free meals, BUPA, Pension, Insurance. New 4341 coming soon.

IBM OS

3 shift working in CITY area. 18 mths. exp. Weekend o'time. Good perks. Career progression.

IBM DOS

3 shift working in Essex. 12 mths. experience, 'O' level plus common sense.

IBM SYS 3

3 shift working in CITY area. LV's. Cheap insurance. New 4331 within 6 mths.

HONEYWELL GCOS

3 shift working out of town. 12-18 mths. experience. Relocation package. Pleasant surroundings.

COBOL PROGRAMMERS £6500

C. LONDON

A large Financial organisation is currently seeking Programmers at all levels, the salary indicated is for 2 years' COBOL experience. The present Hardware is an ICL 1900 but a 2960 is in the process of being installed, this therefore makes it an exciting time for anyone joining the company at the moment. Although the Hardware is ICL this does NOT exclude applicants with COBOL on other Mainframes.

The company offers free lunches, season ticket loans, annual bonus, flexitime and an excellent Mortgage subsidy.

to £8000

£7000+

Training officer required for North London/Herts company. Responsibility for all

£5500+

2 shift working in West London. Free meals, BUPA, Pension, Insurance. New 4341 coming soon.

£5500c

3 shift working in CITY area. 18 mths. exp. Weekend o'time. Good perks. Career

progression.

£5000c

3 shift working in Essex. 12 mths. experience, 'O' level plus common sense.

£5000

3 shift working in CITY area. LV's. Cheap insurance. New 4331 within 6 mths.

£6000c

3 shift working out of town. 12-18 mths. experience. Relocation package. Pleasant

BASIC PROGRAMMERS

CITY £5500 + Mortgage

An International Banking Group require a Programmer to complement their fast developing D.P. department. The current Hardware is PDP 11/70's running one of the most advanced and sophisticated Banking Systems. The minimum requirement for this position is 12 months BASIC programming, preference will be shown to applicants with a Financial/Banking background but this is NOT essential.

As well as an excellent starting salary the Company also offers Free Life Assurance and a very good Mortgage subsidy after a qualifying period.

£5000

ICL 2956

2 shift working in Surrey. Subsidised Mortgage after 12 mths. and many more benefits. G/H exp. required, preferably 18 mths.

ICL 1902

2 shift working in North London, to train on IBM Mainframe, must have G/H exp.

PDP 11/70

12 months PDP exp. to work 3 shifts. Subsidised Mortgage and other Bank benefits.

PDP 11/35

12 mths. PDP exp. to work 4 shifts Monday to Friday. Scope for advancement.

UNIVAC

2 shift working in the CITY, preferably 2 years' 90/30 exp. Plenty of overtime.

UNIVAC

3 shift working in West London, 12 months Univac exp. O/T and perks.

DATA CONTROLLER

6-12 months' D/C experience required for 2 shift working in West End. Salary review after 6 mths.

£4800

TARGA COMPUTER SERVICES
46/47 LONDON WALL, LONDON EC2M 5TE
01-638 6381

Hardware Sales

London-Birmingham-Manchester-Scotland

£8-10,000 (Basic) + Car + Commission

Our client is a market leader, supply and support mini computers which have data-processing, word processing and communication capability. Continuing success and the ever increasing number of sales enquiries, necessitates expansion of their sales force. Regional offices have been set-up, each office having its own systems and engineering support.

Technically excellent, ideally with a knowledge of mini computers, the candidates appointed will be successful sales people in the commercial sector, who are ready to accept a further challenge. Salaries are excellent and you will, of course, get a company car and commission, which is limitless. Contact: Ron Burgess. Ref: RB/CW/271.

Personnel Consultants,
14 New Burlington Street,
London W1X 1FF.
Tel: 01-734 6134.

LUMICRON
SELECTION LTD

Systems Analyst

Salary up to £8,000

The successful applicant will have at least two years' experience including significant involvement with the development of at least one major project. A knowledge of ICL Hardware and Software together with some On-line Systems Design experience is desirable.

Programmers

(2 posts)

Salary up to £8,000

Applicants should have a minimum of two years' experience of ICL COBOL together with a sound knowledge of ICL general software.

The commencing salary will be determined according to experience.

The Authority currently operates an ICL 1902T with several on-line applications and is reviewing its immediate requirements to match an ambitious development plan.

Application forms available from and returnable to the Chief Personnel Officer, Civic Centre, Millgate, Wigan. Closing date 26th January, 1980.

MVS, JES2/JES3 Support

Systems Programmer - Holland £20,000+ p.a.

We are seeking two Systems Programmers to join one of our Senior Software Consultants in the System Support Group of an MVS Data Centre in Holland. Current hardware is an 800/168, and a major upgrade to both CPU's is planned for the second quarter of 1980. Applicants should be adaptable, capable and responsible with at least three years systems programming experience, including one year or more of MVS concerned with MVS support and problem determination, and the other position more involved with JES2 (JES3 later next year) including some project work on enhancing JES facilities.

For further details please telephone or write to Jim Shaw at CDS, or call him during evenings/weekends on (0990) 24646.

CDS The European 370 Specialists
67-73 Finsbury Circus, London EC2M 3PE. Tel: 01-278 2616. Telex: 848668.

We require

RPG II ANALYST/PROGRAMMER

CIRCA £6,000
SOUTH LIVERPOOL

Preferably with experience of IBM System 34 and/or alternatively experience of IBM System 32 would be preferable. The successful candidate, preferred age 25-30, would be able to demonstrate a sound background in RPG programming, and will have systems design and analysis experience.

The company has recently embarked on a major investment using System 34 computers, and is offering an opportunity for an enthusiastic candidate to join our development at a senior level.

The remuneration package includes a contributory pension scheme and superannuation.

For application form, please write to the Director of the Peter Weekly.

PRE-SALES ANALYST

£8,000 — PLUS CAR

BASIC FOUR, REAL-TIME MINIS

- ★ Pre-sales support for packaged and tailor written systems
- ★ Preparation of outline specifications
- ★ Career path available into Sales Force if desired
- ★ Applicants must have Pre-Sales experience with Commercial application software
- ★ Other benefits include B.U.P.A., four weeks' holiday and business expenses

CONTACT: Bill Escott or David Green
on 01-965 9731 MAI U.K. Ltd.

C&L

Making Computers Effective

DP Consultancy

Successful managers in DP recognise that the effective computer-based system is the one which is designed to work in the real world and does meet the end-user's needs.

Many DP professionals aim to develop their careers initially from a technical world into management. Consultancy offers a stepping stone to experienced DP professionals who wish to continue to develop their careers by giving them the opportunity to see computer systems from the viewpoint of top management and the user, and to build effective systems by working with the user to define his needs, imaginatively selecting all the appropriate methods and turning them into practicable systems solutions.

Added to this is the variety of environments — application, company, industry, country — with a consequent opportunity to explore and apply different DP techniques and hardware, software and communications facilities.

We are looking for a few people, in the preferred age group 28-35, to whom this prospect is attractive. If you are interested, please telephone Ernest Morris or Austin Bendall on 01-806 4040, or write giving brief but comprehensive details of career and salary to date quoting ref. SW30/00 to the Executive Selection Division at the address below.

Coopers & Lybrand Associates Limited;
Management Consultants,
Shelley House, Noble Street, London EC2V 7DQ.

NORTH-WEST THAMES REGIONAL HEALTH AUTHORITY COMPUTER CENTRE DEPARTMENT MANAGER FINANCE AND MANPOWER SYSTEMS £8,170-£9,832 (FROM 1.1.80)

North-West Thames Regional Health Authority is the strategic planning authority for Bedfordshire, Hertfordshire and the London boroughs of Barnet, Brent, Ealing, Hammersmith, Harrow, Hillingdon, Hounslow, Kensington and Chelsea and Westminster.

This Authority now wishes to appoint an experienced DP professional with proven managerial ability to lead the teams of analysts, programmers and liaison officers responsible for providing a complete computing service to the Finance, Personnel and Manpower Planning users in the Region. Continued development in these application areas is afforded a high priority.

This is a senior position which offers an excellent opportunity for an ambitious project leader to broaden his/her experience.

The Regional Computer Centre is a modern purpose-built self-contained unit standing in its own grounds in Colney Hatch Lane, New Southgate, London, N11. The Centre is equipped with a large ICL 1804S supported by document processor. In addition a wide variety of mini computers are installed around the Region. There are good working conditions, a 36-hour week, 23 days' annual leave plus 2 public holidays, and canteen facilities.

For informal discussions of details of the post and computer development and activity in the Region, please telephone 01-381 0821.

Further details and application form may be obtained from the Regional Personnel Officer, North-West Thames Regional Health Authority, 40 Eastbourne Terrace, Paddington, London W2 3QR (Telephone No. 01-282 8011, Ext. 2811).

We have a few select positions on both the design and the functional sides. However duties will revolve around the same axis.

You will be involved in the development of application systems, program specification and design, system documentation and systems testing and implementation.

Experience of COBOL, Online, Data Base and application systems combined with a thorough knowledge of system and program design are essential criteria.

Experience of the Univac 1100 series will definitely be an added advantage.

Datsun South Africa is among the local market leaders in the motor industry. We are owned by the Messina group of companies and our large plant is located on the outskirts of Pretoria — South Africa's capital city, famous for its tree lined streets, superb climate and historic buildings.

We manufacture passenger ranges as well as heavy and light commercial vehicles. In recent years the South African motor industry has been undergoing a heavy programme to increase local content i.e. components are manufactured in South Africa and not merely imported and assembled.

As a result it is essential that we constantly upgrade our computer network to meet the challenges and demands of the future. To do this we require top line people to join us at a senior level to further develop our systems. Consequently you will develop your own expertise and knowledge.

Salary will mirror your position of responsibility and benefits will include subsidised car lease schemes, annual bonus, generous leave plus all other normal large company fringe benefits.

Systems Analysts COBOL Programmers Operations Officers

Pioneering a new mini-computer system is no ordinary job

Up to £8405

Gas is a big business and like any big successful business, North Thames Gas is dedicated to the development of ever-more advanced and efficient computer systems.

Our success depends on people — nearly two million customers in five counties including London. To improve our already unrivalled standard of service, we are developing a sophisticated and flexible real-time mini-computer system: this will run on Data General C330 machines connected to a large V.D.U. network. We have given this work high priority and we are now looking for capable and creative professionals with dedication and flair. They will be based at our mini-computer development centre at Acton, in West London, in addition to our existing large mainframe installation.

For Systems Analysts and Programmers, you will need at least three years' practical experience, and you will participate in the

development and implementation of the new systems. Initial salaries will range from £6,758 to £8,405 depending on experience.

For Operations Officers, you will need five years' experience, two of which should be at senior level. You will be responsible for the operating environment, provision of hardware/software support, the software library, production of computer operations procedures, problem solving and operator training. Initial salary will range from £7,316 to £8,405 depending on experience.

For an informal discussion ring Richard Toombs for Analysts and Programmers or Geoff Fenton for Operations Officers 01-993 0914.

Alternatively, write to our Senior Personnel Officer (HO), North Thames Gas, North Thames House, 17-51 London Road, Staines, Middlesex TW18 4AE, quoting reference Q9054/CW



NORTH THAMES GAS

Challenging positions with excellent rewards in South Africa

In addition, your buying power will increase substantially when based on the sterling equivalent. For example, some South African prices: 1lb rump steak 68p, dozen eggs 36p, 1lb sugar 6p, loaf of bread 14p, bottle of Scotch £3.38, bottle of Gin £2.82, bottle of Wine 75p, and the list goes on.

Assistance with relocation expenses will be given through South African immigration in the form of air tickets for yourself and your family. Hotel accommodation for one month and a generous settling-in allowance will be paid by the company.</p

OPERATIONS STAFF

Senior Operator £5,500 neg
Required by large Middlesex site. A minimum of two years in Operations, preferably on 370 mainframes, operating under OS/VS 1. The company offers well defined career paths for ambitious operators. Three shifts. Ref 2652.

Operator £5,200 neg
For prestigious West End site. Two or more years' experience on large IBM mainframes. Candidates should have OS/VS 1 or MVS experience. The position is suitable for a career-minded operator who wants to earn rapid promotion. Three shifts. Ref 3013.

Shift Leader £6,000 neg
For friendly West End installation. A minimum of four years operations experience is required. Candidates should be familiar with DOS, POWER and GRASP operating systems. The position is suitable for candidates seeking an opening into management. Two shifts. Ref 2620.

Operator £5,300 neg
For large Northern site. Candidates should have a minimum of eighteen months' operations experience on IBM equipment, using DOS/VS POWER. CICS experience would be useful. Candidates will be required to do a programming aptitude test. Three shifts. Ref 2688.

Operator £4,500 p.a.
For friendly city site. Two or more years' operations experience, preferably on the 1900 range operating under George II. Three shifts. Ref 2691.

Shift Leader £5,500
Urgently required by a South London company. A minimum of three years' operations experience, preferable on IBM equipment, operating under DOS POWER. CICS knowledge would be an advantage. A good opportunity for a young, ambitious operator seeking promotion. Three shifts. Ref 2685.
For more details ring Kathleen now.

CL EXECUTIVE
01-499 7761

Computing in the Construction Industry

The advances of technology in the construction industry are placing increasing importance and demand on the use of computers.

The Computer Application Department of Taylor Woodrow Construction provides a computer service for engineers throughout the Taylor Woodrow Group. The demands on such a service are wide ranging covering the various engineering disciplines and embrace design planning and management information.

Applications are invited from graduates in computer science or from engineering graduates who possess a desire to develop their computer skills. Successful applicants will be involved in the maintenance of an efficient computer system, as well as the development of software associated with graphics and information processes.

Attractive salaries will be accompanied by the kind of conditions to be expected from a large international organisation. For more information and an application form please contact David Nelson (Ref. CAG), Personnel Department, Taylor Woodrow Construction Limited, 345 Ruislip Road, Southall, Middlesex UB1 2XZ. Tel: 01-575 4884.

Construction

TAYLOR WOODROW

SYSTEMS ANALYST/PROGRAMMER
Construction Industry
West Midlands

Expansion of the computer department within this successful Construction Group, with its Head Office situated in rural Warwickshire, has given rise to the requirement for a Systems Analyst/Programmer.

A totally integrated accounting system has been developed and is currently running on an IBM System/34. Computerisation of various management computer systems is the next phase in the development plan, and the person envisaged will be of such a calibre as to be able to take complete control of individual projects.

At least five years' experience in systems analysis together with a detailed knowledge of RPG II is seen as a requirement, although consideration will be given to those with less experience.

A salary commensurate with the responsibilities to be undertaken will be offered, together with a Company car. Other fringe benefits include a contributory pension scheme and free BUPA. Consideration will be given to relocation expenses if applicable.

Apply in the first instance, giving brief details of career to date.

P. Robbins, Esq., Personnel Manager
Espley-Tyas Group Limited
Park Hall, Balford Priory
Evesham, Worcs. WR11 8BC

ESPLEY-TYAS

RPG II PROGRAMMER
SYSTEM/34 — £6,000+

We are part of an international organisation rapidly expanding our U.K. cosmetics and pharmaceutical business.

We have recently replaced our S/3-8 by a large IBM system/34 and wish to recruit an RPG II Programmer. This is a new position in our expanding Data Processing Department, and the person appointed will work on major projects including on-line applications.

Applicants must have a minimum of 2 years' RPG II programming experience (knowledge of system/34 would be an advantage).

Please telephone or write for an application form to:

Mrs. J. Humby, Personnel Administrator
PLOUGH (U.K.) LTD.
Penarth Street, London SE15 1TR
Tel: 01-839 4363

or if you want to know more about the job, phone Mr. F. Gervock, Data Processing Manager.

An Advanced and Intensive Course on
COMPILING TECHNIQUES
at
BRUNEL UNIVERSITY, UXBRIDGE

on five consecutive Tuesdays, April 22-May 20, 1980
Lecturer Prof. F. A. Hopgood, Head of Computing Division
Butefield Laboratories
Author of: "Computing Techniques".
Further details from:
The Secretary
Computer Science Department
Brunel University
Uxbridge, UB8 3PH

Fycliffe and Peterlee Development Corporations

SYSTEMS ANALYST/DESIGNER
(TWO-YEAR FIXED TERM APPOINTMENT)
(Readvertisement)

GRADE VIII

£6,606-£7,098 p.a. plus £10 per month "on account"
pending result of comparability study

Applications are invited for the above post which is a joint appointment with the Peterlee and Fycliffe Development Corporations.

The successful applicant will be given a high level of responsibility in a central role reporting directly to the Managing Director. Duties include advising on computer applications in all departments, specifying and maintaining and developing computer packages and in addition providing support services.

Applicants should preferably be graduates in computer studies with a high technology background and proven statistical ability. Ideally they should have experience of both real business with particular emphasis on financial requirements.

Attractive fringe benefits available in certain cases, may include rented housing accommodation and settling-in allowance and an essential car user allowance.

The appointment is supernumerary and the successful applicant will be required to pass a medical examination. Previous applicants need not apply.

Application forms may be obtained from the undersigned or by telephoning Su Taylor on Ext 204.
F. C. SIMPSON
Director of Administration and Finance
Lee House, Yoden Way, Peterlee, Co. Durham.
Telephone Peterlee (0783) 863366

WEDNESDAY, 30 JANUARY
Chairman: Dr. Frank Taylor, Systems Technology Consultant

DEVELOPMENTS IN MICROTECHNOLOGY
Microcomputing into the 80's.
Dr. Martin Henley, University College, Cardiff.
A role for the microelectronics field with particular reference to the direction the market will take in the 80s.
The developing chip.
Scot Dixon, Intel Corporation.
The trend towards incorporating more elements, including memory, on the chip continues.

Bit-slice technology — An approach to bespoke microprocessors.
Dr. Alan Clements, Teesside Polytechnic.

The flexibility of bit-slice components enables machines with a variety of architecture to be constructed.

Memories for microsystems.
David Parfitt, Philips Semiconductors.

The capacity of semiconductor memory is expanding to meet the future need and new applications are being opened up by bubble memory.

PUTTING MICRO TO WORK
Vibration Monitoring.
Ian Whitworth, Royal Military College of Science.

Microprocessors are being used to monitor vibration fatigue on large metal structures.

Micros in toys.
Peter Smith, Texas Instruments.

Growing use of microprocessors in toys poses interesting problems in systems design and cost control.

The application of microprocessors in measurement systems.
Speaker from SIRA Institute to be confirmed.

Incorporating micros in OEM products.
S. Sandell, Hugh Pashman Associates.

The technical and practical considerations of incorporating micros in OEM products are examined.

THURSDAY, 31 JANUARY
Chairman: Dr. Michael Henley, University College, Cardiff.
SYSTEMS DESIGN AND SPECIFICATION
Specifying the system.
Dr. Keith Baker, Sussex University.

A methodical approach to systems specification and design is the key to avoiding later problems.

Communicating with the outside world.
A.A. Molnar, Data Translation Inc.

Interfacing the microsystem to the outside world is not always as straightforward as it could be.
Five years' experience of a modular system.
Harrold Linnemann, Satco AB.

Design of a microcomputer system based on over 80 Eurocard modules, allowing a choice of processor, store type and I/O circuits.

Standards for microsystems.
Speaker to be confirmed.

What technical standards have been agreed in the micro field? The speaker reviews what has been achieved.

SOFTWARE FOR MICROSYSTEMS
Micro software.
John Smart, CAP Microsoft.

Microcomputer software is often limited in its scope. But it is improving. The current situation is examined.

Development aids.
K. Smith, Electrical Research Association.

The tools which are available for developing microsystems are reviewed and the way in which they are used is examined.

Development software for microprocessor systems.
Martin Whithread, Leeds Polytechnic.

The main pre-requisites for development software outlined and the relative merits of PLM and PASCAL are assessed.

Databases on microsystems.
Tony Stock, D.M. England and Partners.

Problems of implementing database applications on microcomputer systems are identified and solutions are described.

FRIDAY, 1 FEBRUARY
Chairman: Julian Allason, ACT Pisoft.

PERSONAL COMPUTING
Trends in personal computing.
Robin Bradbeer, North London Polytechnic.

An examination of the directions which personal computing is taking, with reference to the U.S. scene.

How to choose a microcomputer system.
Martin Collins, Applied Systems Techniques.

Identifying the criteria for selecting a microcomputer is the first step to a successful choice.

Where next with the Pet?
Richard Morris.

What is likely to be the next stage in the development of the Pet and what does the future hold for many thousands of UK users?

How to run a business on a microsystem.
Speaker to be confirmed.

Linking your micro to the video data system.

Peter Sommer.

The ability to provide local intelligence, in the form of a micro, adds a new dimension to video data systems.

Microelectronics in schools — are we going in the wrong direction?
John Severe — Nottingham Technology Centre.

The speaker argues that we are in danger of regarding micros just as an educational aid rather than tools to be used.

Personal computing — a user's view.
Barry Smith.

Getting into personal computers is not without its problems. The speaker looks at the current situation and asks whether things are improving.

Personal computing — a retailer's view.
Derek Moon, Currys.

When a major High Street chain goes into the personal computer business — it's news. A director of Currys gives his view of the market.

January 30 & 31, February 1, 1980 — Wembley Conference Centre, London

There are four great reasons why you should attend Britain's foremost microcomputer event. Can you afford to ignore them?

- **Exhibition** — more than 100 exhibition stands making it unquestionably Britain's largest specialist micro show.
- **Professional Development Courses** — three one-day courses to introduce you to the micro. Presented by Integrated Computer Systems, the leading training company.
- **Buyers Forum** — Sessions specially designed to help you in the selection of microprocessor products and equipment.
- **Conference Sessions** — State-of-the-Art sessions to bring you up-to-date with latest developments in the micro field.

To: **MICROSYSTEMS'80** Room 814, Dorset House Stamford Street, London SE1 9LU

Please send me:
 Conference programme and booking form.
 Details of the Professional Development Courses.
 Registration ticket(s) for the Exhibition. State number required.

Name
Address
Tel No.

A COMPUTER WEEKLY HANDBOOK

BASIC FILE DESIGN

BY OWEN HANSON

This book provides a brief but authoritative review of the most frequently used file organisation techniques, and of related subjects such as data security and software aids.

The file designer is shown how to choose between the available techniques on the basis of known or forecast information rather than rule-of-thumb, and methods of ensuring that the correct choice has been made are given.

New work carried out by the systems analysis division of the City University Business School, London, is linked with previously published information to provide methods of optimising the performance of sequential, direct and indexed files. Marked improvements can be achieved, particularly with direct files, which are worthy of wider use than at present.

Students of data processing, lecturers and practitioners should all find the book invaluable, particularly because it provides a great deal of information and many illustrations in a very compact format.

£1.50 including postage. Rates for bulk orders on request

Available from:
General Sales Department, IPC Electrical/Electronic Press Ltd, Dorset House, Stamford Street, London SE1 9LU

MYRIAD

COULD YOU BE
A RECRUITMENT CONSULTANT?

LONDON

If you are interested in recruitment but do not have the necessary experience Myriad may be able to give you the opportunity to train as a Recruitment Consultant.

As one of the major companies in our field with a well-established professional reputation, we have both the resources and expertise to train you in the skills needed to carry out this challenging and rewarding work.

You must have a background in the computer industry, such as programming, analysis or any sales oriented position. Without this essential grounding you could not be expected to give career advice to applicants or advise clients in major recruitment assignments. Under 35, you should possess the potential to succeed in highly sales-oriented situations in which you will have the freedom to work very much on your own initiative.

The wide range of activities encompassed by the work will undoubtedly surprise you. You will also be interested in your training, and career development. To find out the answers and much more about the varied and interesting life as a recruitment consultant, contact us to arrange an informal discussion and we will also tell you about the outstanding long-term career opportunities available.

Ref. AW/1110
MYRIAD APPOINTMENTS LIMITED Computer Personnel Consultants
Telephone or write to: 40 Fleet Street, London EC4Y 1AA 01-351 0981 (24 hrs)

SOUTH YORKSHIRE COUNTY COUNCIL
DEPARTMENT OF ENGINEERING

Analyst / Programmers

Two vacancies exist in the Computer Section of the Department based in County Hall, Barnsley. The posts are part of a small group covering many aspects of civil and traffic engineering. Known future projects include Urban Traffic Control, Highways Information Systems, Highway Design and Graphics. The Department uses the County's ICL 1904S, a PDP based graphics workstation, WANG mini-computers and access bureau using an intelligent terminal.

An attractive flexible working hours scheme is in operation and a pay comparability study is currently being undertaken with payment due from 1st January 1980.

**Engineering Analyst /
Programmer**

Grade APL 5
Salary £6444-£5547

Post ref E/1.13
Applicants should possess a degree level qualification in a technical subject. Relevant experience would include FORTRAN and the use of technical packages. Knowledge of a non-technical language is desirable.

**Trainee Engineering
Analyst / Programmer**

Grade T1 1.4
(Over Grade)
Salary £1809-£5067

Post ref E/2.1.6
Applicants should have at least 4 'O' levels or equivalent, together with A level Mathematics and an interest in working in a technical environment. Progression through the grade will be based on experience and examination success.

Closing date for applications 25th January, 1980.

Please write or telephone for an application form quoting (Personnel) SYCC County Hall, Barnsley S70 2TN or telephone Barnsley 88141 Ext 266

Programmer
c. £5,500

We are a leading film processing company based in North-West London. We require an experienced Programmer to be responsible for our small and friendly Programming Team, developing various applications on Honeywell Level 6 and Series 200 systems. Knowledge of COBOL and on-line processing would be advantageous.

For further information phone or write to:
Mr. Lloyd Williams,
Tudor Photographic Group Ltd.,
30-32 Orgate Lane,
London NW2 7HU.
Tel: 01-450 6384

COMPUTER SERVICE ENGINEERS

Mins
London
Home Counties & South Bristol
£8,000 + O.T.
Peripherals & Micros
All Areas UK
£6,500 + car + profit share

For further details phone now
DEE EXECUTIVE LTD. (AGY)
01-549 9251

USA

Interviews next week for jobs in America.
Analyst/Programmers :
IBM OS/Cobol.

Telephone Roger Barnes on
01-628 4200

SIDA

COULD YOU BE
A RECRUITMENT CONSULTANT?

£7500-£12000

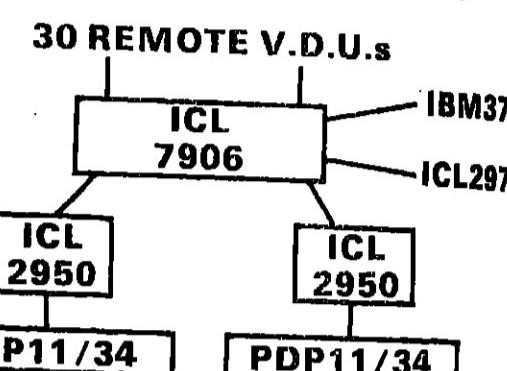
If you are interested in recruitment but do not have the necessary experience Myriad may be able to give you the opportunity to train as a Recruitment Consultant.

As one of the major companies in our field with a well-established professional reputation, we have both the resources and expertise to train you in the skills needed to carry out this challenging and rewarding work.

You must have a background in the computer industry, such as programming, analysis or any sales oriented position. Without this essential grounding you could not be expected to give career advice to applicants or advise clients in major recruitment assignments. Under 35, you should possess the potential to succeed in highly sales-oriented situations in which you will have the freedom to work very much on your own initiative.

The wide range of activities encompassed by the work will undoubtedly surprise you. You will also be interested in your training, and career development. To find out the answers and much more about the varied and interesting life as a recruitment consultant, contact us to arrange an informal discussion and we will also tell you about the outstanding long-term career opportunities available.

Ref. AW/1110
MYRIAD APPOINTMENTS LIMITED Computer Personnel Consultants
Telephone or write to: 40 Fleet Street, London EC4Y 1AA 01-351 0981 (24 hrs)

southern electricity
ANALYST
UP TO £8,955
PROGRAMMER
UP TO £6,830
(SALARY REVIEW 1st FEBRUARY)
(BASED NEAR MAIDENHEAD)

S.E.B. are: working on twin 2950 main frames linked to other ICL and IBM installations and are using teleprocessing, graphics and other interesting techniques. Our principal programming languages are COBOL and FORTRAN.

If you are interested in working on new real time projects on up to date equipment, and have system design or programming experience, contact Mike Shore or Graham Thorpe on Littlewick Green 2166 or write for an application form to Mrs. Pam Polak, Southern Electricity House, Littlewick Green, Maidenhead, Berks. SL6 3QB, quoting 1/80 which should be returned not later than 29th January, 1980.

Senior
Computer Operator

(REF. I.A. 434). £6421-£6808 p.a.

The successful applicant will be responsible for the day-to-day operating of the ICL 2904 and associated activities. In addition he/she will be expected to play a major role in local terminal activities including the existing 7502 systems. Candidates should have spent some time in a communications environment, preferably with ICL 1900/2900 equipment and have several years operational experience at a supervisory level.

Computer Operator

(REF. I.A. 433). £4288-£4722 p.a.

The post holder will be involved in the day-to-day operating of the ICL 2904 and related activities. He/she will have several years' experience in an operating environment, preferably using communications equipment. A knowledge of RJE procedures would be an additional advantage.

Both the above posts will entail providing operational cover over an extended day ranging from 08.00 hours to 22.00 hours with hours outside this range being governed by operational requirements.

Closing date for applications 24th January, 1980.

Application forms are available from the Personnel Office, Severn Trent Water Authority, Tame Division, Tame House, 156/170 Newhall Street, Birmingham B3 1SE. Telephone: 021-233 1816.

Johnson & Johnson

Programmer

Up to £5,500

Berks

Johnson & Johnson, leading international manufacturers of health-care and baby products, operate a highly efficient DP department at their Slough headquarters which is of vital importance to the company's continuing pattern of growth. The present installation is an IBM 370/138 with VDU's and 3740 transmission equipment at local and remote locations. The major programming language is PL/I with D/L/I as the database software. A.P.L. and D.M.S. are currently being implemented. We have a vacancy for a Programmer with a minimum of one year's programming

experience, preferably PL/I although training will be given where necessary. As a major international company, Johnson & Johnson can offer excellent career prospects. Salary is negotiable up to £6,500 p.a. depending upon qualifications and experience and there is a wide range of benefits including the advantages of flexible relocation expenses will be paid where appropriate.

Write with full details or telephone for an application form to: Mrs. Anne Dunn, Personnel Officer, Johnson & Johnson Limited, 260 Bath Road, Slough, Berks, SL14EA. Tel: Slough 31234.

The POLYTECHNIC
WOLVERHAMPTON

Department of Computing and Mathematical Sciences

Applications are invited from graduates with good industrial or teaching or research experience.

Lecturer II/
Senior Lecturer
in Computing

A specialist in systems software, hardware or programming is required to teach to Honours degree level on Computer Science courses.

Salary Scale: £1154-£1747, HD
Senior Lecturer £15,587-£28,293

Further particulars and application forms from: The Polytechnic, Wolverhampton WV1 1LY. Telephone: 0922-27371 24 hour Answerphone service.

THE POLYTECHNIC, HUDDERSFIELD
Department of Computer Studies and Mathematics
SENIOR LECTURER
OR LECTURER II COMPUTING

Applicants should have appropriate practical experience in:

- (a) Application and Systems Programming
- or
- (b) Computing for Engineering and Technology, including computer aided design and graphics.

Candidates will normally be expected to hold a post-graduate degree and/or MCSE.

Staff are expected to undertake activities, including teaching duties.

Salary: £L 6875-£7701 (Bar) - £4225

LH £2470-£27145 per annum.

Further details and application forms, which should be submitted by January 10, 1980, to the Personnel Officer, The Polytechnic, Huddersfield, HD1 3JL. Tel: 0484-22233. Please quote reference number 1000.

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

BOX Nos.

Box number replies should be addressed to:

Box No.

c/o Computer Weekly

Dorset House

Stamford Street

London SE1 9LU

Telephone 01-838 0036

Telex 22233 SWA 24 hour Answerphone service.

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

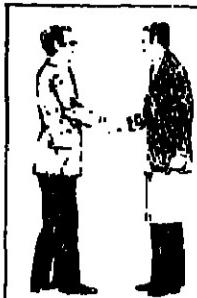
Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1P 5PD

Fraser Williams (London) Ltd.
38 Warren Street, London W1



MICROSYSTEMS'80

January 30 & 31, February 1, 1980 — Wembley Conference Centre, London

There are four great reasons why you should attend Britain's foremost microcomputer event. Can you afford to ignore them?

- Exhibition — more than 100 exhibition stands making it unquestionably Britain's largest specialist micro show.
- Professional Development Courses — three one-day courses to introduce you to the micro. Presented by Integrated Computer Systems, the leading training company.
- Buyers Forum — Sessions specially designed to help you in the selection of microprocessor products and equipment.
- Conference Sessions — State-of-the-Art sessions to bring you up-to-date with latest developments in the micro field.

WEDNESDAY, 30 JANUARY

Chairman: Dr. Frank Taylor, Systems Technology Consultants

DEVELOPMENTS IN MICROTECHNOLOGY

Microcomputing into the 80s
Dr Martin Healey, University College, Cardiff.

A review of the microelectronics field with particular reference to the direction the market will take in the 80s.
The development of the microprocessor
Scott Davis, Intel Corporation.

The trend towards incorporating more elements, including memory, on the chip continues.

bit slice technology — An approach to bespoke microprocessors.
Dr Alan Clements, Texas Instruments.

The flexibility of bit slice components enables machines with a variety of architecture to be constructed.

Memory for microsystems
David Parrott, Texas Instruments.

The capacity of semiconductor memory is expanding to meet the future needs and new applications are being opened up by bubble memory.

PUTTING MICRO'S TO WORK

Vibration Monitoring
Ian Whitworth, Royal Military College of Science.

Microprocessors are being used to monitor vibration fatigue on large metal structures.

Micros in toys
Richard Phipps, Texas Instruments.

Growing use of microprocessors in toys poses interesting problems in systems design and cost control.

The application of microprocessors in measurement systems.

Speaker from SIRA Institute to be confirmed.

Incorporating micros in OEM products

S. Samuels, Hugh Franklin Associates.

The technical and practical considerations of incorporating micros in OEM products are examined.

Tel: **MICROSYSTEMS'80** Room 814, Dorset House

Stamford Street, London SE1 9LU

Please send me:

- Conference programme and booking form.
- Details of the Professional Development Courses.
- Registration tickets(s) for the Exhibition. State number required.

THURSDAY, 31 JANUARY

Chairman: Dr. Martin Healey, University College, Cardiff.

SYSTEMS DESIGN AND SPECIFICATION

Specifying the system.

Dr. Keith Miller, Sussex University.

A discussion on how systems specification and design is the key to avoiding later problems.

Communicating with the outside world.

AA. Molnar, Data Translation Inc.

Interfacing the microsystem to the outside world is not always as straightforward as it could be.

Five years' experience of a modular system.

Harrington Landmark, Satco AB.

Description of a microcomputer system based on over 80 Buricard modules, allowing a choice of processor, store type and I/O circuits.

Standards for microsystems.

Speaker to be confirmed.

What technical standards have been agreed in the micro field? The speaker reviews what has been achieved.

SOFTWARE FOR MICROSYSTEMS

Microsoft, Microsoft.

Microcomputer software is often limited in its scope. But it is improving. The current situation is examined.

Development aids.

K. Smith, Electrical Research Association.

The aids which are available for developing microsystems are reviewed and the way in which they are used examined.

Development software for microprocessor systems.

Martin Whitbread, Leeds Polytechnic.

The main pre-requisites for development software outlined and the relative merits of PLM and PASCAL are assessed.

Databases on microsystems.

Tony Stuck, D.M. England and Partners.

Problems of implementing database applications on microcomputer systems are identified and solutions are described.

FRIDAY, 1 FEBRUARY

Chairman: Julian Allison, ACI Persoft.

PERSONAL COMPUTING

Links in personal computing.

Ronald Headen, North London Polytechnic.

An examination of the directions which personal computing refers to the UK scene.

How to choose a microcomputer system.

Mark Collins, Applied Systems Techniques.

Identifying the criteria for selecting a microcomputer is also discussed.

Where next with the PC?

Richard Lawson.

What is likely to be the next stage in the development of the PC does the future hold for many thousands of UK users?

How to run a business on a microsystem.

Speaker to be confirmed.

The speaker's experience in applying a micro to his business.

Local area net to the videotext system.

Nigel Sommerville.

The ability to provide local intelligence, in the form of a menu dimension to videotext systems.

Microedu-trains in schools — are we going in the wrong direction?

John Storrie — Nottingham Technology Centre.

The speaker argues that we are in danger of regarding micro-education as rather than tools to be used.

Personal computing — a user's view.

Berry Buddus.

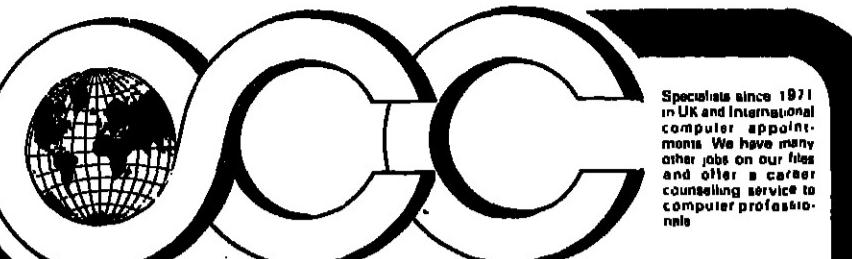
Getting into personal computers is not without its problems. It looks at the current situation and asks whether things are going to get better.

Personal computing — a retailer's view.

Derek Moon, Currys.

When a major High Street chain goes into the personal computer's news, a director of Currys gives his view of the market.

Name:
Address:
Tel. No.:



Specialists since 1971
in UK and International
computer appointments
including other jobs on our files
and offer a career
counselling service to
computer professionals

Brussels
Systems

Programmer

c £14,000

IBM 370/158 with MVS,
CICS, TSO, VSAM

This vacancy offers an unusual opportunity for an experienced systems programmer to move to Brussels.

The position is at the European data centre of a multi-national corporation, in very attractive offices in a pleasant part of the city. Local accommodation is plentiful and the company offers a generous relocation package.

Considerable development work is being undertaken at the centre and in particular CICS is being introduced. You would join a small team of technical support staff and require a strong systems programming background including sound experience of MVS generation. CICS experience is also desirable. English is the working language of the installation.

Initial interviews will be held in London or Nantwich and final interviews in Brussels.

To apply for this unusual vacancy, please contact Neville John on Nantwich (0270) 627206 (weekdays), or Farnborough (Kent) 52880 (weekends), quoting ref. 251/CW. Alternatively ring our London office on 01-242 8356 for an application form.

OCC Computer Personnel
4 Church Lane
Nantwich
Cheshire CW5 5RQ
Telephone: (0270) 627206



YOU MAY NOT BE QUITE WORTH THIS BUT... YOU ARE PROBABLY WORTH MORE THAN YOU THINK!

WE ARE HERE TO HELP YOU
REALISE YOUR POTENTIAL

WITH OUR CONTACTS, SKILL & EXPERIENCE
WE ARE THE ONLY CONSULTANCY YOU NEED CONTACT

SENIOR PROGRAMMER

To £7,000

BIRMINGHAM Ref. 5/473

'A' Levels preferred. At least 2 yrs experience of Programming using COBOL. Commercial applications.

SENIOR PROGRAMMER
To £6,500 + Car
WEST MIDLANDS

Ref. 5/468

Chief Programmer capable of controlling staff. At least 4 yrs. experience in Cobol or Assembler Commercial Bureau.

PROGRAMMER/ANALYSTS
To £7,500
BIRMINGHAM Ref. 5/471

Commercial Applications. At least 3 yrs experience prof COBOL. Bureau environment.

SENIOR ANALYST £7,500
BIRMINGHAM Ref. 5/472

At least 3 yrs. experience commercial applications. Preferably a programming background using COBOL.

ANALYST C. £6,500
BIRMINGHAM Ref. 5/474

To assist in the development of projects from feasibility to implementation. 1 yr. experience required.

SYSTEMS & PROGRAMMING MGR.
£7,500 + Car
WEST MIDLANDS

Ref. 5/477

Degree preferred. IBM, Data General Mini and Micro Computers. Cobol, RPG and Basic knowledge would be desirable.

A WIDE RANGE OF VACANCIES BEING REGISTERED DAILY
INTERVIEWS ANY TIME — WALK IN BETWEEN 9.00 a.m.—5.30 p.m.
EVENINGS AND WEEKENDS BY APPOINTMENT

CENTRAL LOCATION. REVERSE CHARGE CALLS ACCEPTED

FREEPOST—BLACKWOOD ASSOCIATES, FREEPOST
BIRMINGHAM B2 4BR

Blackwood Associates
Recruitment Consultants

26 Waterloo Street, Birmingham B2 5TJ
Telephone 021-233 2921 (24 hr. service)

A Member of the CPS Group of Companies

FOR FURTHER DETAILS OF THIS WEEKLY FEATURE

Contact: Owen Kelly, 01-872 4211
Basil McGowan, 021-346 4838
Ken Walford, 01-261 8019

COMPUTER INDUSTRY SPECIALISTS

SALES • SYSTEMS • MARKETING • ENGINEERING • PROGRAMMING

INFORMATION TECHNOLOGY
CONSULTANTS LTD

INFORMATION TECHNOLOGY
CONSULTANTS LTD

SALES • SYSTEMS • MARKETING • ENGINEERING • PROGRAMMING

INFORMATION TECHNOLOGY
CONSULTANTS LTD

Specialist Computer Recruitment Ltd

London 01-935 0671 3 Mandeville Place, Wigmore Street, London W1M 5LB
Birmingham 021-236 3761 37 Great Charles Street, Queen'sway, Birmingham B3 3JY
Manchester 061-833 0427 Blackfriars House, The Paragon, Manchester M3 2JA